

APPENDIX C – BIOLOGICAL TECHNICAL REPORT

FINAL

**Biological Technical Report
for the
Centinela Solar Energy Project**

Prepared for:

Centinela Solar Energy, LLC
c/o LS Power Development, LLC
5000 Hopyard Road, Suite 480
Pleasanton, California 94588

Prepared by:

Heritage Environmental Consultants
2870 Emporia Court
Denver, Colorado 80238



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Executive Summary

Centinela Solar Energy, LLC (CSE, or “Applicant”) is proposing to build, operate and maintain a solar electric power generating facility and associated electric line on private and federal lands in southern Imperial County. The proposed project consists of two primary components: (i) generation and associated facilities on privately owned land (the “CSE Facility”) and (ii) an approximately seven-mile, 230-kilovolt (kV) aboveground, electrical line (the “Gen-tie Line”) that will connect the CSE Facility on private land with the Imperial Valley Substation located on federal land managed by the U.S. Department of the Interior Bureau of Land Management (BLM). The CSE Facility and Gen-tie Line are referred to collectively as the “Project.” The area encompassing the CSE Facility and the Gen-tie Line is referred to as the “CSE Project Area.” The Applicant plans to begin construction on the Project as early as winter 2011.

General biological surveys, rare plant surveys, Burrowing Owl surveys, avian use surveys, Mountain Plover surveys, and a preliminary jurisdictional delineation were conducted between 2009 and 2011 within the CSE Facility, Gen-tie corridor and associated buffer areas. Additional rare plant surveys are currently ongoing and should be completed in May 2011. The 5,418.5-acre survey area is located in the Colorado Desert lowland and includes active agricultural fields and associated infrastructure as well as native and disturbed habitats.

Twenty-one vegetation communities were mapped within the survey area. Vegetation communities associated with wetland or riparian habitats such as the desert wash and mesquite thickets are considered sensitive by California Department of Fish and Game. In addition, the creosote bush–white bursage scrub area is also considered sensitive. Potentially significant impacts will occur to desert wash, and creosote bush–white bursage scrub, and habitat restoration and/or compensation, as well as a weed management plan, will be required to mitigate this impact.

One priority plant species was observed within the survey area and vicinity during spring 2009 rare plant surveys: ribbed cryptantha (*Cryptantha costata*). Impacts are expected to occur to some ribbed cryptantha individuals, though they are not considered significant and mitigation would not be required. No other priority plant species are expected to be impacted.

The BLM Sensitive flat-tailed horned lizard, the BLM sensitive Burrowing Owl (*Athene cunicularia*), and the California Species of Special Concern Loggerhead Shrike (*Lanius ludovicianus*), Crissal Thrasher (*Toxostoma crissale*), and LeConte’s Thrasher (*T. lecontei*) were observed within the survey area. Species-specific avoidance, minimization, and mitigation measures such as pre- construction surveys, timing of construction, biological monitoring during construction, compensation for habitat loss, and wildlife mortality reporting will be required to reduce potentially significant impact to a level of less than significant for these species.

A preliminary delineation of jurisdictional waters of the U.S. and State was conducted to identify drainages and washes within the jurisdiction of U.S. Army Corps of Engineers, California Department of Fish and Game, and California Regional Water Quality Control Board. Impacts to jurisdictional waters of the U.S. under U.S. Army Corps of Engineers jurisdiction

on-site may require a permit under Section 404 Clean Water Act, and as part of the 404 permit process, a Section 401 state water quality certification from the California Regional Water Quality Control Board. Depending on the extent of the impact, a Section 404 Nationwide Permit may be appropriate. In addition, a Section 1602 Streambed Alteration Agreement would also need to be authorized for any alteration to the bed or bank of any waters of the State. Compliance with the State Water Resources Control Board's General Construction Permit is also required.

1.0 INTRODUCTION

Centinela Solar Energy, LLC (CSE, or “Applicant”) is proposing to build a 175-megawatt (MW) PV solar field with the option to expand to an additional 100 MW of capacity, and an associated Gen-tie Line. The general location of the Project is the Mount Signal area of Imperial County, approximately 8 miles southwest of the city of El Centro, Imperial County, California (**Attachment 1: Figure 1**).

The proposed CSE Facility (**Attachment 1: Figure 1**) is comprised of approximately 2,067 acres of private land, of which approximately 1,861 acres are currently in active agricultural production. The Applicant controls the CSE Facility site through a combination of options to purchase and lease agreements and fee ownership by an affiliate.

The proposed Gen-tie Line transects three distinct property segments (**Attachment 1: Figure 2**). The Gen-tie Line will originate at the CSE Facility substation, located immediately south of Highway 98 and approximately ½ mile east of Pulliam Road, and extend approximately 1.5 miles generally west through the CSE Facility site. From the western boundary of the CSE Facility site, the Gen-tie Line would extend across the West Side Main Canal and continue approximately 1.25 miles through private agricultural lands south of Highway 98. The remaining approximately 4.25 miles extends through federal lands managed by the BLM, first west then north, to connect with the Imperial Valley Substation. The proposed BLM ROW for the Gen-tie Line encompasses the segment from Mount Signal Road south of Highway 98 and traverses approximately 4.25 miles to the Imperial Valley Substation. For most of its length, the proposed Gen-tie Line ROW is adjacent to existing 230-kV electric lines. The proposed BLM ROW width is 125 feet.

1.1 Location

The proposed project boundaries run across SR 98, east of the City of El Centro, Imperial County, California, Universal Transverse Mercator (UTM) coordinates for the Project are as follows: (CSE Facility centerpoint – 11S, 626762 E, 3617381 N (16 feet BMSL); the Gen-tie Line northern terminus – 11S 620357 E, 3621007 N (4 feet AMSL); Gen-tie Line southern terminus – 11S 626960 E, 3616460 N (**Attachment 1: Figure 1**).

The survey area for most species/resources is defined as the Project Area plus a 1,000-foot buffer area. The survey area is 5,418.5 acres in size. Some species required different survey areas which are described on a case by case basis.

1.2 Project Description

CSE is proposing to build, operate and maintain a solar electric power generating facility and associated electric line on private and federal lands in southern Imperial County. The proposed project consists of two primary components: (i) generation and associated facilities on privately owned land (the “CSE Facility”) and (ii) an approximately seven-mile, 230-kilovolt (kV) aboveground, electrical line (the “Gen-tie Line”) that will connect the CSE Facility on private land with the Imperial Valley Substation located on federal land managed by the U.S.

Department of the Interior Bureau of Land Management (BLM). The CSE Facility and Gen-tie Line are referred to collectively as the “Project.” The area encompassing the CSE Facility and the Gen-tie Line is referred to as the “CSE Project Area.” The Applicant plans to begin construction on the Project as early as winter 2011.

1.2.1 Proposed Action

The proposed action is the BLM’s issuance of a right-of-way (ROW) grant for the portion of the Gen-tie Line located on federal land managed by the BLM. An estimated twenty-seven Gen-tie Line tower structures would be located on BLM-managed lands along the proposed electric line route into the Imperial Valley Substation. An additional seventeen Gen-tie Line tower structures are estimated to be used on private land south of Highway 98 for the connection to the Applicant’s on-site substation. Existing access roads will be used to the extent practicable during construction, operation, and maintenance of the Gen-tie Line on BLM-managed lands. Where existing access is not sufficient, new unpaved access roads would be constructed. The Gen-tie Line is described in more detail in **Section 1.2.4.2**.

1.2.2 Survey Area

For the purposes of this analysis the survey area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. This includes off-site use areas such as access roads. The survey area for the Proposed Action is shown on **Attachment 1: Figure 3** and includes

- The 125-foot Gen-tie right-of-way (ROW) corridor on federal land and a 1,000-foot buffer surrounding the ROW
- The CSE Facility and the portion of the Gen-tie Line located on private land (including a 1,000-foot buffer surrounding the CSE Facility and Gen-tie Line on private land)

The survey area is found in portions of Township 16 South, Range 13 East, Section 31; Township 16.5 South, Range 12 East, Section 3; Township 17 South, Range 13 East, Sections 4, 5, 9, 10, 16, 17 and 18; Township 17 South, Range 12 E, Sections 2, 11, 12 and 13.

1.2.3 Description of Project Components

As discussed above, the primary components of the Project are the CSE Facility and the Gen-tie Line. These components are described in detail below.

1.2.3.1 CSE Facility

The proposed CSE Facility site (**Attachment 1: Figure 2**) is comprised of approximately 2,067 acres of private land, of which approximately 1,861 acres are currently in active agricultural production. The Applicant controls the CSE Facility site through a combination of options to purchase and lease agreements and fee ownership by an affiliate.

The Applicant is proposing to construct the CSE Facility in two phases. During the initial phase, a generating capacity of approximately 175 megawatts (MW) would be constructed. The

remainder of the undeveloped land within the CSE Facility site would allow for a future expansion of up to approximately 100 MW of additional capacity. Further details on the construction process are provided in **Section 1.2.4.1.2**.

The CSE Facility has been designed to avoid direct impacts (i.e., disturbance) to environmentally sensitive features such as Greeson Wash, Westside Main Canal, and Mount Signal Drain. The CSE Facility is described in detail below.

1.2.3.1.1 Facility Description

Current Use. The parcels for the proposed CSE Facility are currently used for agricultural production, predominantly of forage crops such as Bermuda grass and alfalfa. In addition, two single family residences and a mobile home are located within the CSE Facility site. The CSE Facility is bisected by various irrigation canals, drains, and public roads.

Process. The proposed CSE Facility will use proven solar photovoltaic (PV) technology and electronic power conditioning equipment (inverters) to produce three-phase, 60 Hz, utility-grade electric power directly from the sunlight. Individual PV modules will convert sunlight to direct current (DC) electrical power. PV modules will be grouped into PV array blocks of approximately 1-3 MW each. The DC output of the array blocks will be sent to inverters that convert the DC power to alternating current (AC). A medium voltage transformer will increase the voltage of the AC power and transmit it, by way of the AC collector system, to the CSE Facility substation. Transformers at the substation will increase the voltage to 230 kV for transmission across the Gen-tie Line to the Imperial Valley Substation.

Equipment. The largest component of the proposed CSE Facility is the PV array field, consisting primarily of the PV modules (which consist of the rack-mounted PV panels and associated hardware). The PV modules will be mounted on steel support structures that are anchored to or driven into the ground. The installed height of the PV modules will be typically 6 feet above ground level at the highest point with a typical ground clearance of 2 feet. Selection of the anchoring system will depend on soil conditions and final design considerations. The PV arrays (groups of modules as described above) could be designed as 1) “fixed” arrays with modules at a set angle, tilted upwards and oriented south or southwest, or 2) as a single-axis-tracking system with modules aligned on a north-south axis and tracking the sun from east to west on a motor-actuated tilt system.

One inverter or multiple inverters grouped together will be used for each PV array block of approximately 1-3 MW of generation. The inverters will be housed inside unoccupied electrical enclosures on concrete foundations up to 45 feet long and 15 feet wide. The inverter enclosure, along with other electrical equipment installed on the foundation (including medium voltage transformers) will be up to approximately 12-feet in height.

The AC collector system will collect the power generated from the PV array blocks and transmit it to the CSE Facility substation. The AC collector system will consist of medium voltage cables buried underground between and connecting the inverter transformers together within a larger PV array area. When the cables reach the edge of an array area, they will be joined together to

combine and feed their power into a trunk line that connects to the CSE Facility substation. The trunk lines may be underground or overhead. If overhead, the lines would be supported by single or double-circuit tubular steel tower structures up to approximately 70 feet in height. The AC collector system will not be located within nor cross over the Greeson Wash or the Westside Main Canal. Crossings of the Mount Signal Drain will be either by directional boring for underground lines or by spanning for overhead trunk lines.

The CSE Facility substation will be located in the southern portion of the Project site, south of State Highway 98 and west of Brockman Road. The substation will be equipped with circuit breakers, disconnect switches, current transformers, and capacitor-controlled voltage transformers for revenue metering and line and bus protection.

Facilities. The CSE Facility will have a common services area that will include support buildings and facilities, including the following:

- Administrative offices, conference room, restrooms and an operations control room
- Maintenance shop and warehouse for storage of equipment and parts
- Water treatment and storage facilities
- Parking

The CSE Facility will include earthen stormwater retention and detention basins with surface areas of approximately 1.0 and 0.4 acres, respectively, to manage stormwater flows. If the Applicant elects to have a permanent on-site water treatment system to treat water for PV panel washing, three evaporation ponds with a total surface area of approximately 1.25 acres would be constructed. The evaporation ponds would be used to store and evaporate process water from the water treatment system (e.g., brine from a reverse osmosis system) and would be above-ground, constructed of concrete, and lined with an impermeable material such as high density polyethylene. Solids accumulating in the evaporation ponds would need to be periodically removed. The solids would be characterized prior to removal and disposed of in compliance with applicable regulations governing disposal of solid waste.

All-weather access roads will provide access throughout the CSE Facility. Perimeter fencing will utilize chain link security fencing topped with three-strand barbed wire. Additionally, the CSE Facility substation will have a separate interior fence for safety reasons. Up to nine 10,000-gallon water tanks will be dispersed throughout the CSE Facility for dedicated firewater supply.

1.2.3.1.2 Construction Summary

The initial construction phase (up to approximately 175 MW) is expected to require 22-28 months. Construction is expected to start as early as winter 2011, with initial operations commencing in late 2012 and full operations in 2013 or early 2014. The Project will be constructed so that individual PV array blocks can be energized and begin generating electricity as they are completed. The Gen-tie Line and CSE Facility substation will be completed and commissioned prior to the operation of any PV array blocks.

As discussed above, additional solar generating capacity (up to approximately 100 MW) is expected to be constructed at a later date, with a construction schedule estimated to be 15-18 months. Expansion of the generating capacity of the Project will predominantly involve incremental construction of additional PV blocks, electrical wiring, incremental electrical equipment within the CSE Facility substation, and associated roads and fencing. The common services area facilities and the Gen-tie Line will be designed and sized to accommodate the expansion. With the exception of additional equipment within the CSE Facility substation, no substantive changes or additions to other Project facilities would be required to accommodate the expanded generating capacity.

Construction activities generally consist of three primary components: site preparation, assembly / installation, and commissioning / testing. The onsite construction workforce will consist of laborers, craftspeople, supervisory personnel, and support personnel. The construction workforce for the initial construction phase is expected to peak at approximately 360 and average approximately 250 workers

Construction worker parking areas will not be located on BLM-managed land. Construction workers will be directed to park in one of the two dedicated multi-use areas. One area is located in the northeast corner of the intersection of Pulliam Road and Kubler Road. The other is located south of State Highway 98 west of Brockman Road. From these locations construction workers will be transported by construction vehicles (such as SUVs, shuttle bus), or when in close proximity, walk to the active construction area.

Construction crews are expected to work a maximum of six days per week, 10 -hours per day ~~s per week~~ (typically Monday through Saturday), generally beginning work at 7:00 AM and concluding at 5:00 PM each day. During the summer months, a split schedule may be developed to minimize worker exposure to midday heat; however, local noise ordinances and other applicable policies would be considered in setting such a schedule.

1.2.3.1.3 *Operation and Maintenance*

The Project will operate seven days a week, 365/366 days a year, generating electricity during daylight hours. The operation and maintenance (O&M) activities will largely involve monitoring of the facility performance, routine preventative and corrective maintenance, facility security, and administrative activities. The operating workforce is expected to include five to seven full-time employees. CSE Facility staff is expected to be on-site predominantly during daylight hours. The Applicant expects to hire a third party security service to monitor the CSE Facility site during unstaffed hours (such as nighttime). The security system will likely be comprised of cameras, motion detectors and vehicular patrols of the site. Other contracted services may include janitorial and landscape services.

The CSE Facility will require periodic, comprehensive maintenance of certain components, such as semi-annual testing and servicing of the inverters. Such maintenance activities are expected to be contracted services, typically requiring 2-5 contract employees and lasting two or three weeks. In the event of PV module breakage or failure, new panels will be delivered to the site,

and CSE Facility staff would change out the panels. Any panels removed will be recycled or disposed of in accordance with all local, state and federal laws.

Periodic washing of the PV panels may also be performed. It is expected that panel washing will be a contracted service using wash water that is prepared for use by the CSE Facility water treatment system or water that is treated in the local area and trucked to the site. Panel washing is expected to use two water tank vehicles and spraying equipment to apply the purified water to the PV panels. Washing the PV panels is estimated to require additional staffing of four to six employees and take approximately three to four weeks to complete for the CSE Facility site. The frequency of panel washing will be based on site-specific conditions such as rate of dust accumulation, frequency of rainfall, and operational benefit.

Maintenance of on-site drainages and roads will require occasional use of equipment such as graders, dump trucks and tractors. Third party contractors are expected to be used to perform any comprehensive maintenance or improvements to site roads or drainages, in accordance with all applicable regulations.

1.2.3.2 Gen-tie Line

The proposed Gen-tie Line transects three distinct property segments (**Attachment 1: Figure 2**). The Gen-tie Line will originate at the CSE Facility substation, located immediately south of Highway 98 and approximately ½ mile east of Pulliam Road, and extend approximately 1.5 miles generally west through the CSE Facility site. From the western boundary of the CSE Facility site, the Gen-tie Line would extend across the West Side Main Canal and continue approximately 1.25 miles through private agricultural lands south of Highway 98. The remaining approximately 4.25 miles extends through federal lands managed by the BLM, first west then north, to connect with the Imperial Valley Substation.

The Applicant controls the private lands portion of the CSE Facility site to be crossed by the Gen-tie Line through fee ownership by an affiliate and has secured an option to purchase agreement for the easement required on private property west of the CSE Facility site. The width of the permanent easement on non-CSE Facility private lands will be 100 feet with an additional 50-foot wide temporary easement available for construction.

The proposed BLM ROW for the Gen-tie Line encompasses the segment from Mount Signal Road south of Highway 98 and traversing approximately 4.25 miles to the Imperial Valley Substation. For most of its length, the proposed Gen-tie Line ROW is adjacent to existing 230-kV electric lines. The proposed BLM ROW width is 125 feet.

1.2.3.2.1 Facility Description

Current Use. All of the private parcels crossed by the Gen-tie Line are agricultural lands. The Gen-tie Line on private lands will span Carpenter Drain No. 1, Pulliam Road, Mount Signal Drain, Wormwood Canal, West Side Main Canal, and Mount Signal Road but would not directly impact (i.e., disturb) any of these features.

Federal lands through which the Gen-tie Line will extend are generally flat, native desert scrub habitat within the Yuha Basin (**Attachment 1: Figure 2**). The segment of the Gen-tie Line on federal lands is located inside the Yuha Desert Management Area and the Yuha Desert Area of Critical Environmental Concern (ACEC) for flat-tailed horned lizard. Three existing electric transmission lines in the vicinity carry five, 230-kV electric circuits from the International Boundary north to the Imperial Valley substation located on federal lands. An existing access road parallels the existing transmission lines. On federal land, the majority of the proposed Gen-tie Line route would parallel the existing 230-kV transmission lines, starting approximately 1/4th mile south of Highway 98, northward all the way to the Imperial Valley Substation.

The proposed alignment of the Gen-tie Line on federal lands is located entirely within CDCA Plan Corridor “N”, and a portion of the Proposed Action is within the Westwide Energy Corridor Segment 115-238, which is designated as a multi-modal transmission corridor.¹

Equipment and Facilities. An estimated forty-four electric line tower structures would be installed for the Gen-tie Line. This includes approximately ten towers on the CSE Facility site and seven through private property through which the Applicant will purchase an easement. An estimated twenty-seven towers would be located on federal lands. The Gen-tie Line tower structures, whether located on private or federal lands, would be constructed of tubular or lattice steel. The exact height of each Gen-tie Line tower structure will be governed by topography and safety requirements for conductor clearances. Structures on private land will range from approximately 100 to 130 feet above ground and will be spaced typically 700 to 1,100 feet apart. Structures on federal land will range in height from approximately 100 to 150 feet above ground and would be spaced approximately 1,000 to 1,200 feet apart. Towers on federal land have the potential to be taller than those on private land in order to match the spacing of existing adjacent towers.

The Gen-tie Line will be operated at a nominal AC voltage of 230 kV and will consist of three phases, with a single conductor per phase. Shield wires will be installed on the tower peaks and grounds rods will be installed next to the tower structure foundations to protect the conductors from lightning strikes. The shield wires may contain fiber optic fibers for relay and communications.

To the extent practicable, existing roads will be used to access the Gen-tie Line during construction, operation, and maintenance. New access roads will be bladed where sufficient access does not exist on federal lands. Specifications for access roads to be used on federal lands during construction, operation, and maintenance are included below.

- **Existing Unpaved Roads.** These are existing dirt or gravel roads that will not require any improvements² to support construction vehicles to access the ROW. Regular

¹ *Approved Resource Management Plan Amendments/Record of Decision (ROD) for a Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States* (BLM/WO-GI-09-005-1800, the “WWEC ROD”), January 2009.

² Activities that would be considered as improvements include road widening, road straightening, and installation of culverts.

maintenance for construction (such as repair of washout areas, graveling, and installation of gravel pads for controlling trackout) may be performed in these areas. The outer edge of existing unpaved access roads that have been approved by the BLM for the Gen-tie Line will be staked where necessary. Gravelling will be minimized to the extent practicable; it is not anticipated that gravelling will impact flows or habitats within washes, canals, or drains.

- **New Unpaved Access Roads.** These roads will be generally up to 16 feet wide with 2-foot berms on either side. Construction of these new access roads may include mowing, blading, tree removal, and bridge/culvert construction. New roads that are not necessary for operation and maintenance of the Gen-tie line will be restored following construction in accordance with a reclamation plan approved by the BLM. Approved new access roads will be staked to a standard width of up to 20 feet wide.

For Gen-tie Line structures on private land east of Mount Signal Road and west of the Westside Main Canal, no permanent access roads would be constructed, and any temporary disturbance to the farm fields would be restored and the field areas returned to agricultural condition after construction. For Gen-tie structures on private land east of the IID Westside Main Canal (*i.e.*, structures located on CSE Facility parcels) no permanent roads would be constructed for access to the Gen-tie Line as the structures at these locations will be accessible overland. Gen-tie structures in this area would be accessed via the Applicant's access gates off of Brockman Road, Pulliam Road, and Highway 98. Disturbance associated with the Gen-tie Line within the CSE Facility parcels will be repaired after construction in accordance with the Applicant's requirements for the CSE Facility.

1.2.3.2.2 Construction Summary

It is anticipated that construction of the Gen-tie Line will require approximately three to four months. Construction crews are expected to work a maximum of six, 10-hour days per week (typically Monday through Saturday), generally beginning work at 7:00 AM and concluding at 5:00 PM each day. The Gen-tie Line construction workforce will range from approximately 12 workers during mobilization, surveying, and access and up to 50 workers during foundation installation and structure erection.

Following is a sequential description of the activities associated with the construction of the major and ancillary facilities of the Gen-tie Line. These activities include the following tasks:

- Surveying the electric centerline, other Project-related features, and work areas
- Repair and/or construction of access roads
- Clearing and grading activities for the ROW, structure sites, and staging areas
- Excavating/drilling and installing foundations
- Assembling and erecting structures
- Installing counterpoise (structure grounds) where needed
- Stringing conductors and ground wires
- Cleanup and reclamation of affected areas

Excavations for tower structure foundations will be made with power drilling equipment or excavators. Excavated soil will be used for fill where suitable within the Gen-tie Line disturbance footprint, and the remainder will be spread at the structure site or along graded access roads or in locations previously agreed upon by the Applicant and the BLM (for locations on federal lands). Dust control during construction would be accomplished via watering and/or the use of approved dust suppressant products. Temporary disturbances associated with construction will be restored once construction is complete.

The Applicant expects that San Diego Gas & Electric (SDG&E) will need to make limited modifications within the Imperial Valley Substation to accommodate the interconnection (e.g. add breakers, etc), however, it is anticipated all of this work would be completed within the existing fence line of Imperial Valley Substation. Additional detailed information regarding the Gen-tie line is provided in the Applicant's Plan of Development and other submittals on file with the BLM.

1.2.3.2.3 *Operation and Maintenance*

The Gen-tie Line will be designed such that operation and maintenance requirements are minimal. Typical operation and maintenance tasks will include periodic inspections of the equipment and access roads, with repairs made as necessary. Clearing of natural vegetation will be required to maintain clearances for electrical safety, long-term maintenance, and reliability of the electric line. Within or adjacent to the right-of-way, mature vegetation will be selectively removed under or near the conductors to provide adequate electrical clearance as required by the *State of California Rules for Overhead Electric Line Construction; General Order No. 95* ("GO95") prescribed by the California Public Utilities Commission. Trees that could fall onto the electric line and affect the electric line during wind-induced conductor swing or otherwise present an immediate hazard to the electric line, or have the potential to encroach within safe distance to the conductor as a result of bending, growing, swinging, or falling toward the conductor, will be removed.

1.2.3.2.4 *Alternatives*

Alternative 1 (Double-Circuit Structures)

Several solar power projects have been proposed in the vicinity of the CSE Facility and, like CSE, each has proposed locating its gen-tie line adjacent to the corridor of existing transmission lines running from south of Highway 98, northward into Imperial Valley Substation. Since each of the other projects is proposing to interconnect with the Imperial Valley Substation using a single-circuit gen-tie line, the impacts from multiple gen-tie lines can be reduced if two projects share a single set of structures. Under this alternative, CSE would construct its Gen-tie Line in the proposed alignment but install tower structures capable of supporting an additional 230 kV circuit. The gen-tie line from the next project built subsequent to CSE could be strung on the open side of the structures built by CSE, reducing the impacts associated with the construction of a separate set of gen-tie structures. CSE's engineers have indicated that the cost of such double-circuit structures would be approximately 70% higher than that of the single-circuit structures proposed by CSE. Based on the substantially higher cost for double-circuit structures,

CSE proposes to retain the flexibility to construct either single or double-circuit structures for the segment of the Project that is not parallel to the existing 230 kV structures leading into Imperial Valley Substation (i.e., for the east-west segment of the Project south of Highway 98) as part of Alternative 1 should this alternative be selected by BLM. CSE is aware that BLM has received other ROW applications proposing gen-tie lines in the same area, portions of which overlap CSE's proposed route in areas east of the existing 230 kV electric lines. If these applications are processed on a first-come, first-served basis, it is possible that BLM might grant a ROW for CSE's preferred route to another applicant, in which case CSE would propose that BLM adopt the double-circuit design feature described in Alternative 1 and require it for all of the overlapping portions of the various ROW grants issued to minimize impacts associated with incremental build out eastward from the existing 230 kV electric lines. In other words, the first ROW grantee that is ready to construct, regardless of the date of their ROW grant, would be required to build double-circuit structures for the overlapping portion of the ROW.

Alternatives 2 and 3 (CSE Gen-tie Line Shifted Eastward).

In the event that the Applicant's proposed route is not viable or potentially significant impacts could not be avoided, CSE's Gen-tie Line route could be shifted to the east to avoid any conflicts and/or to minimize environmental impacts. CSE proposes that this alternative route would be approximately 125 to 400 feet east of the proposed route. This alternative route for CSE could use either single-circuit (Alternative 2) or double-circuit (Alternative 3) structures as described in Alternative 1.

Alternative 4 (Undercrossing Alternative).

CSE's engineers have indicated that if more than one additional 230 kV electric line is routed north-south under the 500 kV line commonly known as the Southwest Power Link (SWPL) adjacent to the Imperial Valley Substation, there is a possibility that the additional crossing(s) might need to be moved east of the midpoint of the span between the two SWPL structures in order to obtain sufficient vertical clearance for the undercrossing. Thus, the need for this undercrossing shift could potentially be triggered by the selection of Alternatives 1, 2, or 3 above. The undercrossing shift (Alternative 4) is proposed to be evaluated to ensure sufficient flexibility in the event that an undercrossing shift eventually has to be implemented by CSE. The following legal description would need to be added to a ROW for which Alternative 4 were selected: Township 16 ½S, Range 12E, Section 2: Lots 6 and 7.

Alternative 5 (Utilize Existing Electric Line Towers and 230-kV Line Looping).

SDG&E owns a set of double-circuit towers on federal lands that run from La Rosita (Mexico) to the Imperial Valley Substation. This set of towers was permitted for two, 230-kV electric lines; however, only one set of electric lines was strung on one side of the towers, leaving one side of the towers open for an additional electric line. SDG&E and CSE believe it may be feasible for CSE to utilize the currently unused capacity of these towers to interconnect with the Imperial Valley Substation.

Under this alternative, the CSE Facility would interconnect to the utility grid at the 230-kV bus at the Imperial Valley Substation utilizing an electric line located on the existing SDG&E towers. The following work would be completed by SDG&E under its existing right-of-way and permits:

- Replace the six single-circuit towers within the existing ROW with double-circuit towers (first six towers outside of the Imperial Valley Substation)
- String new 230-kV electric line on the eastern arms of the double-circuit towers. For utility planning purposes, CSE understands that SDG&E prefers that this new electric line become the La Rosita – Imperial Valley line, and as such the new line will extend southward to a point about 1 mile north of the International Border. At this location (the “Cross Point”) the new electric line will cross to the western arms and be joined with the old electric line continuing into Mexico.
- North of the Cross Point, the old 230-kV electric line would become a radial line that runs from the Cross Point to the Imperial Valley Substation. (Note: CSE understands that the proposed Imperial Solar Energy Center South project CUP 10-0011 is evaluating interconnecting with this line near the Cross Point.)

To interconnect CSE’s Gen-tie Line with the radial SDG&E electric line, a 230-kV switchyard utilizing a four-breaker ring bus (“Ring Bus”) would be constructed by CSE on private land at the CSE Facility site immediately east of the Westside Main Canal and south of State Highway 98, along the proposed Gen-tie Line route. A single-circuit 230-kV electric line would connect the CSE Facility substation to the Ring Bus. Two 230-kV lines, on a set of double-circuit towers, would be constructed westward from the Ring Bus along the proposed Gen-tie Line Route to the SDG&E towers. The two 230-kV lines would require undercrossing structures to pass beneath the existing north-south 230-kV lines. The radial SDG&E line would be cut and each end spliced together with one of the new east-west 230-kV lines to complete the loop.

The Gen-tie Line under this alternative would include the following components:

- Ring Bus on private land – an approximately 450’ x 350’ electric switchyard using a four-breaker ring bus to be located on the CSE Facility Site. The Ring Bus would have its own chain link fence with 3 strands of barbed wire. For access, the proposed access road off of SR 98 on private land would be extended outside of the CSE Facility fenceline to the Ring Bus. The four-breaker ring bus could accommodate an additional 230-kV electric line, though this is not required for the Project. The Ring Bus will include high-voltage circuit breakers, meters, disconnect switches, lightning arresters, overhead shield wires, lightning masts, electrical control house, communications systems and other equipment required for the operation and maintenance of the Ring Bus.
- Two, 2.0 – 2.25 mile-long 230-kV electric lines located on new double-circuit towers generally running west from the Ring Bus to the radial SDG&E line (approximately 1 mile of this segment would be located on federal land). These lines are expected to follow CSE’s proposed Gen-tie Line route running west to the existing 230-kV

towers, to the location where the Gen-tie Line would undercross the existing 230-kV lines. The Gen-tie Line undercrossing would include 6 H-frame undercrossing structures, two 3-pole tubular structures, and a single-pole tubular structure.

- An approximately 1.4-mile-long 230-kV electric line located within the CSE Facility site on private land on new single or double-circuit towers.

This alternative would result in the net elimination of approximately 12 proposed new CSE tower structures on BLM-managed native desert lands. Impacts to federal lands would be less than the proposed action and Alternatives 1-4 but would result in the addition of an electric switchyard to be located on previously disturbed (farmland) private land. CSE would intend to construct the double-circuit electric lines and towers on the federal land; however, in the future these facilities and the associated BLM right-of-way grant may be transferred to SDG&E for operation and maintenance.

Alternative 6 (Utilize Existing Electric Line Towers and 230-kV Line Looping: Alternative Undercrossing Location and Configuration).

Alternative 6 would be functionally similar to Alternative 5 in that a “loop-in” would be constructed to connect the CSE Facility to the radial SDG&E line; however, the tie-in point for Alternative 6 would be adjacent to the first set of existing 230-kV tower structures to the north of Highway 98 (whereas the Alternative 5 tie-in point would be adjacent to the first set of existing tower structures south of Highway 98). Alternative 6 is described more fully below.

Under this alternative, the CSE Facility would interconnect to the utility grid at the 230-kV bus at the Imperial Valley Substation utilizing an electric line located on the existing SDG&E towers. The following work would be completed by SDG&E under its existing right-of-way and permits:

- Replace the six single-circuit towers within the existing ROW with double-circuit towers (first six towers outside of the Imperial Valley Substation)
- String new 230-kV electric line on the eastern arms of the double-circuit towers. For utility planning purposes, CSE understands that SDG&E prefers that this new electric line become the La Rosita – Imperial Valley line, and as such the new line will extend southward to a point about 1 mile north of the International Border. At this location (the “Cross Point”) the new electric line will cross to the western arms and be joined with the old electric line continuing into Mexico.
- North of the Cross Point, the old 230-kV electric line would become a radial line that runs from the Cross Point to the Imperial Valley Substation. (Note: CSE understands that the proposed Imperial Solar Energy Center South project CUP 10-0011 is evaluating interconnecting with this line near the Cross Point.)

To interconnect CSE’s Gen-tie Line with the radial SDG&E electric line, a 230-kV switchyard utilizing a four-breaker ring bus (“Ring Bus”) would be constructed by CSE on private land at the CSE Facility site immediately east of the Westside Main Canal and south of State Highway 98, along the proposed Gen-tie Line route. A single-circuit 230-kV electric line (to be strung on

single or double-circuit towers) would connect the CSE Facility substation to the Ring Bus. Two 230-kV lines, on a set of double-circuit towers, would be constructed westward from the Ring Bus along the proposed Gen-tie Line Route to the SDG&E towers, where the CSE lines would connect to the radial SDG&E line adjacent to the first set of existing towers north of Highway 98. The two 230-kV lines would require undercrossing structures to pass beneath the existing north-south 230-kV lines. The radial SDG&E line would be cut and each end spliced together with one of the new CSE 230-kV lines to complete the loop.

The Gen-tie Line under this alternative would include the following components:

- Ring Bus on private land – an approximately 450' x 350' electric switchyard using a four-breaker ring bus to be located on the CSE Facility Site. The Ring Bus would have its own chain link fence with 3 strands of barbed wire. For access, the proposed access road off of SR 98 on private land would be extended outside of the CSE Facility fenceline to the Ring Bus. The four-breaker ring bus could accommodate an additional 230-kV electric line, though this is not required for the Project. The Ring Bus will include high-voltage circuit breakers, meters, disconnect switches, lightning arresters, overhead shield wires, lightning masts, electrical control house, communications systems and other equipment required for the operation and maintenance of the Ring Bus.
- Two, approximately 2.5 mile-long 230-kV electric lines located on new double-circuit towers generally running west from the Ring Bus to the radial SDG&E line (approximately 1.2 miles of this segment would be located on federal land). These lines would follow CSE's proposed Gen-tie Line route running west to the existing 230-kV towers, then north across Highway 98 to the tie-in point, where the Gen-tie Line would undercross the existing 230-kV lines. The Gen-tie Line undercrossing would include five H-frame undercrossing structures and three 3-pole tubular structures.
- An approximately 1.4-mile-long 230-kV electric line located within the CSE Facility site on private land on new single or double-circuit towers.

This alternative would result in the net elimination of approximately 11 proposed new tower structures on BLM-managed native desert lands north of Highway 98. Disturbance acreages associated with this alternative are presented in Table 3-2. CSE would intend to construct the double-circuit electric lines and towers on the federal land; however, in the future these facilities and the associated BLM right-of-way grant may be transferred to SDG&E for operation and maintenance.

Table 1 – Proposed Impacts for the Project

Project Component	Solar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
Permanent Impacts											
Solar Field											
Agriculture (AG)	1908.04										
Arrow Weed Scrub (AS)	0.09										
Arrow Weed Scrub - Disturbed (AS-D)	0.61										
Arrow Weed Scrub / Tamarisk Scrub (AS/TS)	0.06										
Arrow Weed Scrub / Tamarisk Scrub - Disturbed (AS/TS-S)	0.07										
Big Salt Bush Scrub - Disturbed (BSS-D)	3.81										
Developed / Disturbed (Dev)	3.65										
Palo Verde Woodland (possibly planted) (PVW)	0.38										
Tamarisk Scrub - Disturbed (TS-D)	3.38										
Solar Field Total	1920.10		1920.10								
Transmission Line											
Access Roads											
Creosote Bush-White Bursage Scrub (CBS)		3.44		3.42	4.17	4.14	3.40	4.12	4.10	2.33	2.22
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.12		0.12	0.33	0.33	0.25	0.37	0.37	0.15	0
Developed / Disturbed (Dev)		0.13		0.13	0.11	0.11	0.02	0.03	0.03	0.02	0.00

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Encelia-White Bursage Wash Scrub (EWBS)		0.06		0.06	0.13	0.12	0.06	0.13	0.12	0	0
Non-Vegetated Sandy Wash (NVSW)		0.02		0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02
Smoke Tree Wash Scrub (STWS)		0.07		0.07	0.18	0.17	0.07	0.18	0.17	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.06		0.06	0.13	0.13	0.06	0.13	0.13	0	0.28
Access Road Total		3.91	3.91	3.89	5.07	5.04	3.89	4.98	4.96	2.52	2.52
Structure Footings											
Agriculture (AG)		0.01		0.04	0.01	0.04	0.04	0.01	0.04	0.04	0.04
Creosote Bush-White Bursage Scrub (CBS)		0.03		0.09	0.02	0.09	0.09	0.02	0.09	0.05	0.03
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.003		0.003	0.004	0.004	0.004	0.004	0.004	0.02	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.002
Developed / Disturbed (Dev)		0.001		0.001	0	0	0	0	0	0	0
Encelia-White Bursage Wash Scrub (EWBS)		0.001		0.005	0.001	0.005	0.005	0.001	0.005	0	0
Smoke Tree Wash Scrub (STWS)		0.001		0.005	0.001	0.005	0.005	0.001	0.005	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.001		0.003	0.003	0.003	0.003	0.003	0.003	0	0.03
Footings Total		0.04	0.04	0.14	0.04	0.14	0.14	0.04	0.14	0.10	0.10
Transmission Line Total		3.96	3.96	4.03	5.11	5.18	4.03	5.03	5.10	2.62	2.63
Permanent Impacts Total			1924.06								
Temporary Impacts											
Transmission Line											
Pulling & Tensioning Sites											
Creosote Bush-White Bursage Scrub (CBS)		5.34		5.34	5.61	5.61	5.64	5.91	5.91	3.64	2.83

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Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0		0	0	0	0.85	0.85	0.85	0	0
Creosote Bush/White Bursage Scrub/Alkali Dep (CBS/AD)		0		0	0	0	0	0	0	0.38	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.74
White Bursage Scrub - Disturbed (WBS-D)		0		0	0	0	0	0	0	0	2.81
Wire Splicing Site											
Creosote Bush-White Bursage Scrub (CBS)		1.15		1.15	1.15	1.15	1.15	1.15	1.15	0	0
Access Road											
Creosote Bush-White Bursage Scrub (CBS)		0.28		0.28	0.32	0.32	0.28	0.32	0.32	0	0.13
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.04		0.04	0.12	0.12	0.04	0.12	0.12	0	0.02
Guard Structures											
Agriculture (AG)		0.07		0.07	0.06	0.06	0.07	0.06	0.06	0.07	0.07
Creosote Bush-White Bursage Scrub (CBS)		0.28		0.28	0.30	0.30	0.28	0.30	0.30	0.04	0.04
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.22		0.22	0.19	0.19	0.22	0.19	0.19	0	0.30
Developed / Disturbed (Dev)		0.16		0.16	0.17	0.17	0.16	0.17	0.17	0.13	0.17
Tower Construction Pads											
Creosote Bush-White Bursage Scrub (CBS)		7.76		7.71	7.91	7.86	7.72	7.91	7.87	3.16	2.60
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.81		0.81	0.86	0.86	0.92	0.86	0.86	1.06	0

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Creosote Bush/White Bursage Scrub/Alkali Dep (CBS/AD)		0		0	0	0	0	0	0	0.04	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.26
Developed / Disturbed (Dev)		0.19		0.19	0.08	0.08	0.09	0.08	0.08	0	0.04
Encelia-White Bursage Wash Scrub (EWBS)		0.40		0.40	0.40	0.40	0.40	0.40	0.40	0	0
Mesquite Bosque (MB)		0.09		0.09	0.00	0.00	0.09	0.00	0.00	0	0
Smoke Tree Wash Scrub (STWS)		0.41		0.40	0.41	0.41	0.40	0.41	0.41	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.39		0.39	0.38	0.38	0.39	0.38	0.38	0	1.95
Temporary Impacts Total		17.59	17.59	17.54	17.98	17.93	18.69	19.13	19.08	8.51	11.97
TOTAL PROJECT IMPACTS			1941.65								

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The Project's anticipated surface disturbance acreage values are shown in Table 1 **TABLE 1**
PROPOSED IMPACTS FOR THE PROJECT

Component	Splar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)
Impacts				-	-	-	-	-	-
(G)	1860.75			-	-	-	-	-	-
Sh-Scrub (S-D)	6.12			-	-	-	-	-	-
Disturbed	0.47			-	-	-	-	-	-
Woodland (Disturbed) (PVW)	0.04			-	-	-	-	-	-
Scrub (S-D)	0.39			-	-	-	-	-	-
Field Total	1860.78		1860.78	-	-	-	-	-	-
In-Line				-	-	-	-	-	-
Roads				-	-	-	-	-	-
Bush-White b (CBS)		2.83		2.78	3.72	3.69	2.84	3.71	3.69
Bush-White Scrub (S-D)		0.15		0.15	0.33	0.33	0.25	0.37	0.37
Disturbed		0.04		0.06	0.07	0.07	0.02	0.02	0.02
Bursage (EWBS)		0.05		0.05	0.11	0.11	0.05	0.11	0.11
Wash-Scrub		0.06		0.06	0.13	0.12	0.06	0.13	0.12
ge-Scrub (S-D)		0.06		0.06	0.12	0.12	0.06	0.12	0.12
Road Total		3.19	3.19	3.15	4.47	4.44	3.26	4.46	4.43
Footings				-	-	-	-	-	-
(G)		0.01		0.04	0.01	0.04	0.04	0.01	0.04
Bush-White b (CBS)		0.02		0.09	0.03	0.09	0.08	0.03	0.08
Bush-White Scrub (S-D)		0.002		0.01	0.003	0.01	0.01	0.005	0.005
Disturbed		0.002		0.002	0	0	0	0	0
Bursage (EWBS)		0.001		0.005	0.001	0.005	0.005	0.001	0.005
Wash-Scrub		0.001		0.005	0.001	0.005	0.005	0.001	0.005
ge-Scrub (S-D)		0.001		0.005	0.001	0.005	0.005	0.001	0.005
Footings Total		0.04	0.04	0.14	0.04	0.14	0.14	0.05	0.14
In-Line Total		3.23	3.23	3.29	4.52	4.58	3.40	4.51	4.57
Component Impacts Total		-	1864.01	-	-	-	-	-	-
In-Line		-	-	-	-	-	-	-	-
Bush-White b (CBS)		6.49	-	6.49	6.49	6.49	6.49	6.49	6.49

The Project's anticipated surface disturbance acreage values are shown in Table 1 **TABLE 1**
PROPOSED IMPACTS FOR THE PROJECT

Component	Splar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)
te	-	-	-	-	-	-	-	-	-
Bush-White b (CBS)	-	1.38	-	1.37	1.37	1.37	1.37	1.37	1.37
oads	-	-	-	-	-	-	-	-	-
Bush-White b (CBS)	-	0.13	-	0.13	0.12	0.12	0.13	0.12	0.12
ictures	-	-	-	-	-	-	-	-	-
Bush-White b (CBS)	-	1.00	-	1.00	0.91	0.91	0.95	0.86	0.86
Bush-White Scrub (S-D)	-	0.10	-	0.10	0.24	0.24	0.20	0.21	0.21
Disturbed	-	0.19	-	0.19	0	0	0.07	0	0
is	-	-	-	-	-	-	-	-	-
Bush-White b (CBS)	-	9.83	-	9.80	9.82	9.79	9.80	9.82	9.79
Bush-White Scrub (S-D)	-	0.97	-	0.97	1.09	1.09	1.16	1.09	1.09
Disturbed	-	0.45	-	0.45	0.36	0.36	0.25	0.36	0.36
Bursage (EWBS)	-	0.48	-	0.48	0.48	0.48	0.48	0.48	0.48
que (MB)	-	0.08	-	0.08	0.06	0.06	0.08	0.06	0.06
Wash Scrub	-	0.51	-	0.51	0.55	0.55	0.51	0.55	0.55
ge Scrub (S-D)	-	0.47	-	0.47	0.47	0.47	0.47	0.47	0.47
ary Impacts Total	-	22.08	22.08	22.04	21.96	21.92	21.96	21.88	21.84
PROJECT IMPACTS	-	1886.09	-	-	-	-	-	-	-

1.2.3.3 Applicant Proposed Mitigation Measures

Table 2 describes mitigation measure the applicant has proposed be incorporated into the proposed project in order to minimize or eliminate impacts potentially resulting from project implementation. Mitigation measures in Table 2 may differ from final measures because additional mitigation measures may be required and/or identified during the NEPA/CEQA process.

Comment [s1]: Some of these may not be the final measure agreed upon following review of ABPP and other wildlife plans

Comment [sy2]: I added language below to reflect the fact that mitigations may not be final yet.

Table 2 - Applicant Proposed Mitigation Measures for the CSE Project

Applies During	Proposed Mitigation Measure	Impact/Environmental Issue Addressed
Design/Const. (Federal land only)	Use existing access roads where practicable.	Biological Resources Cultural Resources
Const. (Federal land only)	All construction vehicle movement outside the right-of way would be restricted to predesignated access or public roads.	Biological Resources Traffic & Circulation
Design/Const. (Federal land only)	The areal limits of construction activities would be predetermined, with activity restricted to and	Biological Resources Cultural Resources

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	confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.	
Const. (Federal land only)	In construction areas where recontouring or excavation is not required, native vegetation would be left in place wherever practicable, and original contour would be maintained to avoid excessive root damage and allow for resprouting.	Biological Resources Geology & Soils
Const. (Federal land only)	In construction areas (e.g., pulling & tensioning, tower construction sites) where ground disturbance or recontouring is required, surface restoration would occur as required by the BLM in accordance with the Applicant's approved reclamation plan.	Biological Resources Geology & Soils
Design/Const. (Federal land only)	As applicable, roads shall be built as near as practicable at right angles to streams and washes. Culverts shall be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to native vegetation, drainage channels, and intermittent or perennial stream banks. In addition, road construction shall include dust control measures in accordance with local dust control requirements. All existing unmarked roads would be left in a condition equal to or better than their condition prior to the construction of the electric line.	Traffic & Circulation Biological Resources Hydrology & Water Quality Air Quality
Design	Minimize Project effects on wetlands, streambeds, and stream banks (i.e., California Department of Fish and Game (CDFG) or U.S. Army Corps of Engineers (USACE) jurisdictional areas) by designing and siting Project features outside of these areas to the extent practicable.	Wetlands, Biological Resources
Pre-const.	Where avoidance of jurisdictional areas is not practicable, the Applicant shall provide the necessary mitigation required as part of wetland permitting by creation / restoration / preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the agencies.	Wetlands, Biological Resources
Design/Const./O&M	For the span of the Gen-tie Line crossing the Westside Main Canal, bird flight diverters shall be installed on the shield wire(s) with spacing in accordance with manufacturer's recommendations.	Biological Resources
Const./O&M	A Worker Environmental Education Program (WEEP) will be prepared and all construction crews and contractors will be required to participate in WEEP training prior to starting work on the Project. The WEEP training will include: <ul style="list-style-type: none"> • A review of the special-status species and other sensitive resources that exist in the Project Area, the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these 	Biological Resources, Cultural Resources

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	<p>sensitive resources;</p> <ul style="list-style-type: none"> • An overview of requirements related to stormwater and wetlands; and • Information on historic and prehistoric cultural resources in the Project Area, including training on the protocols for treating unanticipated discoveries. <p>A record of all personnel trained will be maintained.</p>	
O&M	<p>Monitor evaporation ponds daily for avian use. If a pattern of avian activity in the ponds is observed, implement appropriate measures to minimize avian presence and effects on avian species (e.g., noise deterrents, “catch and treat” program, netting, etc.).</p>	Biological Resources
Design	<p>All overhead electric lines will be designed to be raptor-safe in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee [APLIC] 2006).</p>	Biological Resources
Const./O&M	<p>Feeding of wildlife is not allowed.</p>	Biological Resources
Const./O&M	<p>To prevent harassment or mortality of native wildlife, or destruction of habitat by, no pets will be permitted on Project sites.</p>	Biological Resources
Const./O&M (Federal land only)	<p>No native plant or wildlife species shall be collected from the Project site.</p>	Biological Resources
Const.	<p>All food-related trash items including wrappers, cans, bottles, and food scraps, will be disposed of and placed in a covered dumpster or self closing waste tote each day for scheduled removal from the site to prevent attracting ravens and other scavengers to the area.</p>	Biological Resources
Pre-const.	<p>An avian and bat protection plan (ABPP) will be prepared and approved by the U.S. Department of the Interior Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS), prior to surface disturbing activities, which will outline conservation measures for construction and operation and maintenance (O&M) activities to minimize potential impacts to bird populations. The conservation measures in the ABPP will include the following:</p> <ul style="list-style-type: none"> • Minimizing disturbance to native vegetation to the extent practicable. • Clearing native vegetation outside of the breeding season. If construction occurs between February 1 and September 15, a qualified biologist shall conduct a pre-construction clearance survey for nesting birds in suitable nesting habitat that occurs within the proposed area of impact. Pre-construction nesting surveys will identify any active migratory birds (and other sensitive non- migratory birds) nests. Direct impact to any active migratory bird nest should be avoided to the extent practicable. 	Biological Resources

Comment [s3]: This has not been agreed upon and is not consistent with approved raven and other plans.

Comment [sy4]: Sharon I left this in since it is applicant proposed.

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	<ul style="list-style-type: none"> • Minimizing wildfire potential. • Minimizing activities that attract prey and predators. Control of non-native plants. • Applying APLIC design guidelines for overhead utilities (APLIC 2006) to minimize the potential for avian impacts by the Gen-tie Line. • Preparing a Raven Control Plan that avoids introducing water and food resources in the area surrounding the CSE Facility. • Minimizing noise. • Minimizing use of outdoor lighting. <p>Implementing post-construction avian monitoring and reporting.</p>	
Pre-const./O&M (Federal land only)	A Raven Control Plan will be prepared and approved by BLM prior to ground-disturbing activities, and implemented during O&M of the Gen-tie Line. This plan will be designed to discourage scavengers that may also prey on wildlife in the vicinity.	Biological Resources
Const./O&M	Use of chemicals, fuels, lubricants, or biocides will be in compliance with all local, state and federal regulations. All uses of such compounds should observe label and other restrictions mandated by the U.S. EPA, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and/or CDFG.	Biological Resources, Health, Safety and Hazardous Materials/Fire and Fuels Management
Const./O&M	All fuels, fluids, components with hazardous materials/wastes will be handled in accordance with applicable regulations. All such materials will be kept in segregated storage with secondary containment as required.	Biological Resources, Health, Safety and Hazardous Materials/Fire and Fuels Management
Const.	During construction, all trash, food items, and human-generated debris shall be properly contained and/or removed from the site during scheduled collection.	Health, Safety and Hazardous Materials/Fire and Fuels Management
Const./O&M	Hazardous materials shall not be drained onto the ground or into streams or drainage areas. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.	Health, Safety and Hazardous Materials/Fire and Fuels Management
Pre-const./O&M (Federal land only)	A Weed Management Plan will be prepared by the Applicant and approved by BLM prior to ground-disturbing activities, and implemented during O&M of the Gen-tie Line. This plan should describe specific on-going measures to minimize the potential for noxious weed species on the ROW and encourage native plant growth. This plan should be prepared in conformance with the Project's Habitat Restoration Plan.	Noxious Weeds
Const.	Prior to the application of herbicides on the CSE Facility for weed management, a weed control plan shall be developed and approved by the County of	Agricultural Resources Noxious Weeds

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	<p>Imperial Agricultural Commissioner. The weed control plan shall provide the following:</p> <ol style="list-style-type: none"> 1) Monitoring, preventative and management strategies for weed control during construction activities at the CSE Facility; 2) Control and management of weeds in areas temporarily disturbed during construction where native seed will aid in site revegetation; and, <p>A long-term strategy for weed control and management during the operation of the CSE Facility.</p>	
Const. (Federal land only)	The area of disturbance of native vegetation and soils (including grading) shall be minimized. Wherever practicable, rather than clearing native vegetation and grading the ROW, equipment and vehicles shall use existing surfaces or previously disturbed areas. Where grading is necessary, surface soils shall be stockpiled and replaced following construction to facilitate habitat restoration. To the extent practicable, disturbance of native shrubs and surface soils due to stockpiling shall be minimized.	Biological Resources (FTHL)
Const. (Federal land only)	Speed limits along all Gen-tie Line access roads should not exceed 15 miles per hour during construction and O&M. Gen-tie Line access for O&M activities shall be kept to the minimum necessary for operations.	Biological Resources (FTHL), Air Quality
Const. (Federal land only)	All Project work areas shall be clearly flagged or similarly marked at the outer boundaries to define the limit of work activities. All construction and restoration workers shall restrict their activities and vehicles to areas that have been flagged to minimize adverse impacts to the FTHL and its habitat. All workers shall be instructed that their activities are restricted to flagged and cleared areas.	Biological Resources (FTHL)
Const. (Federal land only)	<p>To the extent possible, surface-disturbing projects shall be located outside of FTHL management areas (MAs), and shall be scheduled to minimize impacts to FTHL. If a project must be located within a MA, effort shall be made to locate the project in a previously disturbed area or in an area where habitat quality is poor. A survey of the project site shall be conducted prior to construction in order to assist in locating the project.</p> <p>To comply with the requirement to schedule surface-disturbing activities to minimize FTHL impacts, to the maximum extent practicable, grading in FTHL habitat will be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24°C (75°F) and 38°C (100°F). If grading cannot be conducted during this time, any FTHLs found will be removed to low-impact areas (see above) where suitable burrowing habitat exists (e.g., sandy substrates and shrub cover).</p>	Biological Resources (FTHL)
Const. (Federal land only)	Prior to ground-disturbing activities, an individual shall be designated and approved by the USFWS and	Biological Resources (FTHL)

	<p>BLM as a Designated Biologist (i.e., field contact representative). A Designated Biologist will be designated for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive Designated Biologist will be approved by the BLM's Authorized Officer (i.e., BLM field manager, El Centro). The Designated Biologist will have the authority to ensure compliance with the conservation measures for the FTHL and will be the primary agency contact for the implementation of these measures. The Designated Biologist will have the authority and responsibility to halt activities that are in violation of the conservation measures. A summary of the responsibilities of the Designated Biologist is provided below. To avoid and minimize impacts to biological resources, the Designated Biologist will:</p> <ul style="list-style-type: none"> • Supervise the Biological Monitor(s) associated with the Project. • Notify BLM's Authorized Officer at least 14 calendar days before initiating ground-disturbing activities. • Immediately notify BLM's Authorized Officer in writing, if the Applicant does not comply with any conservation measures, including but not limited to any actual or anticipated failure to implement conservation measures within the periods specified. • Conduct compliance inspections at a minimum of once per month during on-going construction after clearing, grubbing, and grading are completed and submit a monthly compliance report to BLM's Authorized Officer until construction is complete. 	
<p>Const. (Federal land only)</p>	<p>Biological Monitor(s) will assist the Designated Biologist in conducting pre- construction surveys and monitoring mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The Biological Monitor(s) will have experience conducting FTHL field monitoring, have sufficient education and field experience to understand FTHL biology, be able to identify FTHL scat, and be able to identify and follow FTHL tracks. The Designated Biologist will submit a resume, at least three references, and contact information of the proposed Biological Monitor(s) to the BLM for approval. To avoid and minimize impacts to biological resources, the Biological Monitors will assist the Designated Biologist with the following:</p> <ul style="list-style-type: none"> • Be present during construction (e.g., 	<p>Biological Resources (FTHL)</p>

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	<p>grubbing, grading, structure installation) activities that take place in FTHL habitat to avoid or minimize take of FTHL. Activities include, but are not limited to, ensuring compliance with all impact-avoidance and -minimization measures, monitoring for FTHLs and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs and stakes are intact and that human activities are restricted in these avoidance zones.</p> <ul style="list-style-type: none"> • At the end of each work day, inspect all potential wildlife pitfalls (trenches, bores, and other excavations) for wildlife. If the potential pitfalls will not be immediately backfilled by the construction crew following inspection, the construction crew shall insure that all trenches, bores, and other excavations will be contoured at a 3:1-slope at the ends to provide wildlife escape ramps, or be completely and securely covered to prevent wildlife access. If a FTHL is found trapped in an excavation, the affected lizard shall be captured by hand and relocated. • During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29°Celsius (C; 85°F) for the presence of FTHL. 	
<p>Const. (Federal land only)</p>	<p>FTHLs will be removed from harm's way during all construction activities. FTHL removal will be conducted by Biological Monitors when construction activities are being conducted in suitable FTHL habitat. To the extent feasible, methods to find FTHLs will be designed to achieve a maximal capture rate and will include, but not be limited to, using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort will be 30 minutes per 0.40 hectare (30 minutes per 1 acre). Persons that handle FTHLs will first obtain all necessary permits and authorization from the CDFG. FTHL removal surveys will also include:</p> <ul style="list-style-type: none"> • Accurate records maintained by Biological Monitors for each relocated FTHL, including sex, snout-vent length, weight, air temperature, location, date, and time of capture and release, a close-up photo of the lizard, and a photo of the habitat where the lizard was first encountered. • To the extent feasible, a sample of the lizard scat will be collected. • A Horned Lizard Observation Data Sheet and a Project Reporting Form will be 	<p>Biological Resources (FTHL)</p>

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	completed.		
Const. (Federal land only)	<p>A Biological Monitor shall develop and implement the portion of the WEEP outlined above applicable to FTHL. Wallet-cards summarizing this information shall be provided to all construction and maintenance personnel. The FTHL portion of the WEEP shall include the following aspects at a minimum:</p> <ul style="list-style-type: none"> • Biology and status of the FTHL, • Protection measures designed to reduce potential impacts to the species, • Function of flagging designating authorized work areas, • Reporting procedures to be used if a FTHL is encountered in the field, and <p>Importance of exercising care when commuting to and from the project area to reduce mortality of FTHLs on roads.</p>	Biological (FTHL)	Resources
Const. (Federal land only)	<p>The removal of FTHLs out of harm's way will include relocation to nearby suitable habitat in low-impact (e.g., away from roads and construction sites) areas of the Yuha MA. Relocated FTHLs will be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), the Designated Biologist or Biological Monitor, if authorized, will hold the FTHL for later release. Initially, captured FTHLs will be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. FTHLs will be held at temperatures between 75°F and 90°F and will not be exposed to direct sunlight. Release will occur as soon as possible after capture and during daylight hours. The Designated Biologist or Biological Monitor will be allowed judgment and discretion when relocating lizards to maximize survival of FTHLs found in the project area.</p>	Biological (FTHL)	Resources
Const. (Federal land only)	<p>A biological monitor will be present in each area where construction or restoration work is occurring throughout the work day from initial clearing through habitat restoration, except where the project is completely fenced and cleared of FTHLs by an approved biologist.</p>	Biological (FTHL)	Resources
Pre-const. (Federal land only)	<p>Prior to initiating surface-disturbing activities, the Applicant shall develop a project-specific Habitat Restoration Plan (HRP) for approval by the lead agency. The HRP shall consider and include as appropriate the following methods: replacement of topsoil, seedbed preparation, fertilization, seeding of species native to the project area, noxious weed control, and additional erosion control. The Applicant shall conduct periodic inspections of the restored area. Restoration shall include eliminating any hazards to FTHLs created by construction, such as holes and trenches in which lizards might become</p>	Biological (Soils, FTHL)	Resources Vegetation,

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	entrapped. Disturbance of existing native perennial shrubs during restoration shall be minimized, even if such shrubs have been crushed by construction activities.	
O&M (Federal land only)	<p>During routine O&M activities, the Applicant will implement measures to reduce FTHL mortality along access and maintenance roads, particularly during the FTHL active season (March 1 through September 30). These measures will include:</p> <ul style="list-style-type: none"> • A speed limit of 15 miles per hour when driving Gen-tie Line access roads. All vehicles required for O&M along the Gen-tie Line must remain on the designated access/maintenance roads. • Pedestrian access outside of the designated access roads is permitted year-round as long as no ground-disturbing activities take place (such as weed abatement or other activities that would require soil disturbance beyond pedestrian footprints). This pedestrian access includes occasional inspections of Gen-tie Line equipment. • O&M activities including weed abatement or any other O&M activity that may result in ground disturbance outside of the designated access roads will be conducted outside of the FTHL active season whenever feasible. • If any O&M activities must be conducted during the FTHL active season that may result in ground disturbance, such as weed abatement or vehicles requiring access outside of a designated access road, a Biological Monitor will be present during activities to minimize the potential for effects on FTHL. • Implementation of these measures would be based on FTHL activity levels, the best professional judgment of the Designated Biologist and site-specific road utilization. FTHLs found on access/maintenance roads, if/when monitoring is required, will be relocated in accordance with the measures above. 	Biological Resources (FTHL)

1.3 Regulatory Environment

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

Endangered Species Act of 1973. Endangered Species Act of 1973 (16 United States Code [U.S.C.] 1531–1544), as amended (ESA), protects federally listed threatened and endangered species from unlawful take. “Take” under ESA includes activities such as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The United States Fish and Wildlife Service (USFWS) regulations define harm to include some type of “significant habitat modification or degradation.”

Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. When a federal agency action, such as issuance of a permit or grant of ROW, may affect a federally listed species, the federal agency requests initiation of consultation with USFWS. . The final product of Section 7 consultation is a biological opinion in which USFWS determines whether the proposed action is likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. If the determination is yes, the USFWS will recommend reasonable and prudent alternatives to the proposed action that would reduce the level of impact to no jeopardy/no adverse modification of critical habitat. A biological opinion may include an incidental take statement that provides the federal agency and the project applicant with incidental take authority for the activities evaluated in the biological opinion. The regulations implementing Section 7 of ESA require federal agencies to conference with the USFWS for any species that is proposed as a candidate for federal listing so that USFWS can provide non-binding recommendations that will avoid or minimize impact to the species. The USFWS may, if requested, conduct the conference as a formal consultation by providing a conference opinion and incidental take statement. If the species becomes listed, the USFWS may adopt the incidental take statement provided in the biological opinion, thus conferring incidental take authority.

National Environmental Policy Act. The National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) was signed into law on January 1, 1970. The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. NEPA requires Federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of, and reasonable alternatives to, their proposed actions.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of “migratory bird” is broad, and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened species under the ESA. The

MBTA, which is enforced by USFWS, makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory bird, or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11). ~~Probably should give the broader language in reference to disturbance of behavior. Similar to: For purposes of these guidelines, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."~~

Comment [sy5]: Sharon, I left this language out here since it applies to BGEPA and I don't believe there is similar language for MBTA.

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940 and as amended, prohibits anyone, without a permit issued by the USFWS, from "taking" bald and golden eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." For purposes of these guidelines, "disturb" means: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

California Fish and Game Code 3503.5. Raptors (birds of prey) and active raptor nests are protected by the California Fish and Game Code 3503.5, which states that it is “unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird” unless authorized (California Department of Fish and Game [CDFG] 1991).

California Fish and Game Code 3503. Bird nests and eggs are protected by the California Fish and Game Code 3503, which states “it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.”

California Fish and Game Code 3513. Protects California’s migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.

State of California Fully Protected Species. The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds, and mammals. Most fully protected species have also been listed as threatened or endangered species under ESA and/or California Endangered Species Act (CESA). Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Native Plant Protection Act. The Native Plant Protection Act (*California Fish and Game Code Section. 1900-1913*; NPPA) prohibits the taking, possessing, or sale within the state of any plant listed by CDFG as rare, threatened, or endangered. An exception to this prohibition in the Act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG at least 10 days prior to the initiation of activities that would destroy them. The NPPA exempts from “take” prohibition “the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way.”

Federal Water Pollution Control Act (Clean Water Act, 1972). The Clean Water Act (CWA; 33 U.S.C. 1251 et seq.), as amended, provides a structure for regulating discharges into the waters of the U.S. Through this Act, the Environmental Protection Agency is given the authority to implement pollution control programs. These include setting wastewater standards for industry and water quality standards for contaminants in surface waters. The discharge of any pollutant from a point source into navigable waters is illegal unless a permit under its provisions is acquired. In California, the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for implementing the CWA. Section 404 of the CWA regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other waters of the U.S. The U.S. Army Corps of Engineers (ACOE) is the federal agency authorized to issue Section 404 Permits for certain activities conducted in wetlands or other waters of the U.S. Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity occurring in or adjacent to Waters of the State. In California, the RWQCBs are the agencies mandated to ensure protection of the State's waters. For a proposed project that requires an ACOE CWA Section 404 permit and has the potential to impact Waters of the State, the Regional Water Quality Control Board will regulate the project and associated activities through a Water Quality Certification determination (Section 401).

California Environmental Quality Act (CEQA). The California Environmental Quality Act of 1970 (CEQA), Public Resources Code (PRC) 21100 et seq., requires lead agencies to evaluate the environmental impact associated with a proposed project. CEQA requires that a local agency prepare an Environmental Impact Report (EIR) on any project it proposes to approve that may have a significant effect on the environment. The purpose of an EIR is to provide decision-makers, public agencies, and the general public with an objective document that fully discloses the potential environmental effects of a proposed project. The EIR process is specifically designed to objectively evaluate and disclose potentially significant direct, indirect, and cumulative impacts of a proposed project; to identify alternatives that may reduce or eliminate a project's significant effects; and to identify feasible measures that mitigate significant effects of a project. In addition, CEQA requires that an EIR identify those adverse impacts that remain significant after mitigation.

California Fish and Game Code, Section 1600, as amended. Under Section 1602 of the Fish and Game Code, CDFG regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG has jurisdiction over riparian habitats (e.g., southern willow scrub)

associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFG jurisdiction does not include tidal areas or isolated resources. Section 1602 of the Fish and Game Code requires any person who proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the project. If the CDFG determines that the project may adversely affect existing fish and wildlife resources, a Lake or Streambed Alteration Agreement is required.

Porter–Cologne Water Quality Control Act, as amended. The Porter–Cologne Act grants the State Water Resource Control Board (SWRCB) and the RWQCBs power to protect water quality and is the primary vehicle for implementation of California’s responsibilities under the federal Clean Water Act. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board.

California Desert Conservation Area (CDCA). The CDCA encompasses 25 million acres of land in southern California that were designated by Congress in 1976 through Federal Lands and Policy Management Act. The BLM directly administers approximately 10 million acres of the CDCA (BLM 1980). The CDCA Plan-designated Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan (BLM 1981) was prepared to give additional protection to unique cultural resources and wildlife values found in the region while also providing for multiple use management. The ACEC Management Plan allows for the “traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so.

2.0 SURVEY METHODS

Data regarding biological resources within the Project Area were obtained through field reconnaissance and a literature review of applicable reference materials.

2.1 Field Surveys

The 5,418-acre survey area encompasses the entire solar field, the 125-foot-wide ROWs along the proposed and alternative Gen-tie routes, and buffer areas that varied for several surveys based on the target species.

2.1.1 General Biological Survey

Habitat assessments and general biological surveys of the proposed CSE Facility and associated linear facilities were conducted several times between February 26, 2009 and November 14, 2010. The focus of these surveys was twofold: 1) to document the botanical resources and potentially jurisdictional state and federal waters and wetlands, and 2) to document suitable threatened, endangered, and sensitive wildlife species habitats on the proposed CSE Facility and along the various Gen-tie Line corridors. The field surveys were conducted by hiking naturally vegetated areas with public access on foot and surveying the remainder of the area from public roads. High quality aerial photography was used to map habitats and other features in areas that couldn't be accessed from public roads. These areas were examined with binoculars and vegetation communities were interpreted and mapped on the aerials.

2.1.2 Focused Rare Plant Survey

Rare plant surveys were performed concurrently with the initial habitat assessment and general biological survey efforts in accordance with *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009a). Botanists conducted the initial spring rare plant surveys for the project on March 17-20, 2009. Eight transects were surveyed, on foot, within a 1,000-foot corridor, approximately 125 feet apart. One private parcel at the intersection of Highway 98 and the Westside Main Canal with native vegetation was assessed from the road for its potential to support rare plants. The natural vegetation along the Westside Main Canal and the adjacent canals and drains was also surveyed to assess potential to support rare plants. Rare plant surveys of the remaining areas, which were mostly agricultural fields, were not conducted as these areas were determined to have no potential to support sensitive rare plants.

A database search using CNDDDB RareFind indicated that five rare plant species are known from the project vicinity: brown turbans (*Malperia tenuis*) a CNPS List 2.3 species, hairy stickleaf (*Mentzelia hirsutissima*) a CNPS List 2.3 species, fairy duster (*Calliandra eriophylla*) a CNPS List 2.3 species, rock nettle (*Eucnide rupestris*) a CNPS List 2.2 species and Thurber's pilostyles (*Pilostyles thurberi*) a CNPS List 4.3 species. The survey coincided with the flowering period of all of these species, in some instances the start of the blooming

season, with the exception of the Thurber's pilostyles. In addition, other sensitive species are known to potentially occur within the survey area and were included in the survey. Many spring ephemeral desert species were blooming during the surveys indicating the surveys were conducted at an appropriate time to observe these species.

In July 2010, Andrew Trouette, Natural Resource Specialist with the BLM El Centro Field Office, requested that a more inclusive list of rare plant species known to occur in the greater Imperial Valley be used for this analysis because few botanical surveys have been conducted in this portion of the Imperial Valley region.

There was sufficient rainfall from late September to early October 2010 to warrant fall rare plant surveys and a survey period of late-October to early November was determined to be appropriate (Pers. Comm. John Messina with Andrew Trouette, Natural Resource Specialist, BLM). Phenology of common species at the time of the survey was also used to verify that the survey was conducted within the period when rare plants would also be observable. The fall rare plant survey of the Gen-tie Line was conducted on November 6, 7, and 14, 2010. The survey was focused on the Gen-tie Line design provided in CSE's Plan of Development (POD) submitted to the BLM. Shape files depicting corridor boundaries and locations for each proposed structure and construction activity areas (e.g., pulling and tensioning or wire splicing sites) were uploaded onto Garmin GPS units. Transect locations were determined using UTM's. Track logs depicting transects were recorded on the GPS units.

Thirty-meter transects were oriented parallel to the corridor. For the fall surveys, a 500-foot wide corridor was designated for most of the corridor. Wider corridors (up to 1,100 feet) were surveyed along the portion south of Highway 98, a portion south of the Imperial Valley Substation, and east and north of the Imperial Valley Substation (**Figure 2**). Tighter transects were walked for areas at each structure location (estimated in field at approximately 160' x 160'), pulling and tensioning sites (estimated in field at approximately 500' x 160'), and wire splicing sites (estimated in field at approximately 400' x 160'), such that 100 percent coverage was obtained. Area dimensions of these features were based on the Centinela Solar Energy POD map set (November 2010).

As stated above, the fall surveys were conducted to coincide with the flowering period of fall blooming species. The target rare plant species for this survey was Abrams' spurge (*Chamaesyce abramsiana*), a CNPS List 2 species that blooms from September through November. Other rare plants that bloom at this time would have been observable if present, but most of these species are not expected to occur due to habitat preferences or restricted ranges.

2.1.3 Focused Burrowing Owl Surveys

Phase I and Phase II Surveys for Burrowing Owls were conducted simultaneously by qualified biologists on May 18 and 19, 2009 and March 21 and 22, 2011, according to the CBOC guidelines (CBOC 1993). The Phase I habitat assessment determined that the project contains suitable Burrowing Owl habitat, and a Phase II burrow survey was conducted.

The Phase II Survey consisted of a pedestrian and/or vehicular survey for the entire solar site while searching for potentially suitable burrows. Survey transects were concentrated on suitable habitats along canals, laterals, and drains. The Gen-tie Line was walked (30-meter spacing) to ensure that all suitable burrows were identified. The CBOC protocol includes a survey of a 150-meter buffer around the Project Area. Surveys included at least a 150-meter buffer area; in some cases, the buffer area extended up to ½-mile.

Burrows that had the potential to be used by Burrowing Owls were marked using a handheld global positioning system (GPS) unit. Photos were taken of many potential burrows and all owl observations were noted. “Clusters” were recorded in areas that supported higher densities of burrows to minimize the number of observation points.

The Phase III survey was conducted during the breeding season. Burrowing Owl sightings were mapped, including occupied burrows and burrows with owl sign. Numbers of pairs and juveniles were recorded, as well as behavior such as courtship and copulation. Territory boundaries and foraging areas were not mapped, mainly because active nests were close together and the birds were foraging in adjacent cropland.

The Phase III survey included four site visits during 2009: May 18 – May 21; June 15 – June 17; July 22 – July 24; and August 17 – August 19; one site visit in January 2010; and one site visit in 2011: March 21 – March 25. Surveys were conducted in the morning and evening; ½-hour before to two hours after sunrise and two hours before to one hour after sunset. During the initial Phase III site visit, burrows were examined for owl sign and occupied burrows were mapped. Subsequent observations were conducted from fixed points that provided visual coverage of the site using spotting scopes or binoculars. Observers remained in the vehicle whenever possible to minimize disturbance to the birds.

2.1.4 Avian Use Surveys

Avian use surveys were performed by qualified biologists experienced in the identification of North American birds by sight and sound, according to *BLM’s Solar Facility Point Count Protocol* (BLM 2009b). Point-count stations were located along 4 transects placed throughout the proposed CSE Project Area. Transect locations were designed to sample all habitat types present within the Project Area with a focus on areas most likely to contain a high abundance and/or diversity of birds, while maintaining adequate spatial coverage of the entire Project Area and proposed Gen-tie Line corridor. Each transect was 1,750-meters in length with point-count locations spaced every 250-meters along transects. A total of 32 point-count stations were sampled during each survey event, with a total of four survey events during the winter survey season (December 2010 to January 2011) and four survey events during the spring season (March-April 2011).

At each point count station, biologists recorded all birds seen or heard within a 100-meter radius over a 10-minute sampling period. Pairs or groups of birds were recorded as single detections to avoid issues resulting from statistical dependence. Both detections and individuals are reported here. Birds seen or heard outside of the 100-meter radius were recorded as incidental observations and contributed to the overall project species list, but were excluded from analyses aimed at quantifying avian abundance. Birds that were seen or heard

along transects, but between point-count stations, were also recorded as incidental observations. Point counts were generally performed within four hours of sunrise. Surveys were not performed during inclement weather conditions (e.g. more than light or intermittent rain, winds greater than 15 miles-per-hour).

2.1.5 Mountain Plover Surveys

Qualified biologists experienced in the identification of North American birds by sight and sound, including Mountain Plover detection and identification, performed the winter surveys according to the USFWS *Interim Survey Guidance for Wintering Mountain Plover (Charadrius montanus) in the Imperial Valley* (USFWS 2011). Suitable habitat was identified in the survey area by driving to each field and assessing vegetation height. Observation points were set up so that each field could be sufficiently observed from one point (Heritage 2011b). A total of 16 observation points were established. Two observers were at each observation point; one biologist observed a single field (never more than 80 acres) while the other biologist observed the opposite field. Spotting scopes and binoculars were used to scan each field for a minimum of 30 minutes per field per observer per field visit.

A total of three surveys were conducted between December 1 and February 28, separated by a minimum of five days. Surveys were conducted between the hours of 8 a.m. and 4 p.m. and avoided periods of excessive or abnormal heat, wind, rain, fog, or other inclement weather. Surveys were not conducted if winds exceeded 10 miles per hour. No more than 600 acres were surveyed per biologist per day.

2.1.6 Jurisdictional Delineation

The CSE Project Area was evaluated for drainage features during field visits performed on September 30, 2010 and November 7, 2010. Additional information was gathered using a Geographic Information System (GIS) and aerial imagery. Determinations regarding the potential jurisdictional status of the various features located within the CSE Project Area are based on the applicable regulations and associated guidance documents as well as on personal communications with Lanika Cervantes, Project Manager in the Regulatory Division of the US Army Corps of Engineers (ACOE) and Magdalena Rodriguez, Wildlife Biologist, from the California Department of Fish and Game (CDFG).

2.2 Literature Review

Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (State of California 2009 and 2010a; CNPS 2001; Reiser 2001), species occurrence records from the California Natural Diversity Database (CNDDDB; State of California 2010b), the BLM Special Status plant and wildlife species website (BLM 2010), and species occurrence records from other sites in the vicinity of the survey area.

Additional resources that were consulted included the Biological Technical Report for the Imperial Solar Energy Center West, (RECON 2010a), and the *Draft Environmental Impact Statement for the SES Solar Two* (URS 2008).

3.0 EXISTING CONDITIONS

3.1 CSE Facility and Gen-tie Line (Private Lands)

The following sections describe the existing conditions on lands associated with the CSE Facility, portions of the Gen-tie line and associated buffer areas that are on private lands.

3.1.1 Topography and Soils

The survey area is located in the Yuha Basin of the Colorado Desert between agricultural lands to the north, south, and east and native desert to the west, as well as within active agricultural lands. Alluvial fans and small washes traverse through the Gen-tie Line corridor at various locations, flowing northeast from Mount Signal toward the Westside Main Canal. Most of these drainage features are interrupted by agricultural fields before they reach the Canal (i.e., they are isolated). The uplands between the washes are relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 60 feet above mean sea level (USGS 1976). The proposed CSE Facility is comprised of active agricultural fields.

There are eight major soil types found within the survey area, including Rositas, Niland, Carsitas, Glenbar, Imperial, Indio-Vint, Holtville, and Meloland soils (NRCS 2006 and 2011). These soils are primarily found on flat basin floors and are formed from clay, silt, and sandy alluvium materials.

3.1.2 General Vegetation

Vegetation communities were mapped within the survey area on a one-inch-equals-400-foot color aerial photograph (**Attachment 1: Vegetation Mapbook**). A total of 95 plant species, representing 33 plant families, were identified within the survey area. Of this total, 78 (82 percent) are native to southern California and 17 (18 percent) are non-native, introduced species. A complete list of plant species observed in the Project Area can be found in **Attachment 2**.

Seventeen vegetation communities were mapped within the private land survey area (**Table 3**). Vegetation community classifications in this BTR follow *A Manual of California Vegetation* (Sawyer, Keeler-Wolfe and Evens 2009) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Communities that are similar in composition were lumped together in the discussion following **Table 3**. Goldenbush scrub and disturbed wetland are not discussed because there is very little habitat and they will not be impacted.

Table 3 – Vegetation Communities/Land Cover Types Within The CSE Facility and Gen-tie Line (Private Lands) Survey Area

Vegetation Community	Acres
Agriculture (AG)	3,740.8
Arrow Weed Scrub (AS)	3.7
Arrow Weed Scrub - Disturbed (AS-D)	1.1
Arrow Weed Scrub/Tamarisk Scrub (AS/TS)	85.2
Arrow Weed Scrub/Tamarisk Scrub - Disturbed (AS/TS-D)	19.5
Tamarisk Scrub (TS)	0.5
Tamarisk Scrub – Disturbed (TS-D)	97.4
Big Salt Bush Scrub – Disturbed (BSS-D)	4.8
Big Salt Bush Scrub – Bush Seepweed Scrub (SBSS)	5.4
Creosote Bush – White Bursage Scrub (CBS)	97.8
Creosote Bush – White Bursage Scrub - Disturbed (CBS-D)	25.9
Goldenbush Scrub (GS)	9.2
Mesquite Woodland (MW)	6.0
Palo Verde Woodland (PVW)	1.4
Developed/Disturbed Habitat (DEV/DH)	98.1
Disturbed Wetland (DW)	2.8
Open Water	13.6
Total (Private Lands)	4,213.2

3.1.2.1 Creosote Bush-White Bursage Scrub (CBS and CBS-D)

Creosote bush–white bursage scrub (including the disturbed component) is only a minor component of the survey area and accounts for 123.7 acres (less than 3-percent of the private land survey area). This community is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. Four-wing saltbush (*Atriplex canescens*) and many fruit saltbush (*Atriplex polycarpa*) are present as sporadic minor associates. Small subshrubs present include: California croton (*Croton californicus*), plicate coldenia (*Tiquilia plicata*) and three-fork ephedra (*Ephedra trifurca*). A number of herbaceous perennial and annual species that offered a sparse herbaceous layer between shrubs were observed during the spring surveys (**Attachment 3: Photograph 1**). These species include desert sunflower (*Geraea canescens*), smooth-ray desert marigold (*Baileya pauciradiata*), desert sand verbena (*Abronia villosavar* var. *villosa*), Spanish needles (*Palafoxia arida* var. *arida*), desert dandelion (*Malacothrix glabrata*), frost mat (*Achyronychia cooperi*), desert lily (*Hesperocallis undulata*), basket evening primrose (*Oenothera deltooides*), sun cup (*Camissonia brevipes*), pincushion flower (*Chaenactis stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*).

3.1.2.2 *Agriculture (Ag)*

Active agricultural fields encompass 3,740.8 acres of the survey area (approximately 89 percent of the private land survey area). The vast majority of the proposed CSE Facility and a portion of the Gen-tie Line occur in this habitat type. Alfalfa, Bermuda grass, and wheat are currently the primary crops within the fields.

3.1.2.3 *Arrow Weed Scrub (AS and AS-D)*

Arrow weed (*Pluchea sericea*) has established along the edges of some irrigation canals in many locations, forming 2- to 10-foot-deep arrow weed thickets. In many instances these thickets largely exclude other plant species. Under more open situations, tamarisk and cattails (*Typha latifolia*) can co-occur and dominate in the canal bottoms. In open areas along the banks, weedy invasive species such as barnyard grass (*Echinochloa* sp.) and dock (*Rumex* sp.) are present.

Approximately 4.8 acres of arrow weed scrub (including the disturbed component) is present along the IID-managed canals (<0.1 percent of the private land survey area). Most of these areas are regularly cleared of this vegetation and they are constantly changing.

There are two small patches of typha and typha/phragmites habitat included in this calculation and lumped with this habitat type. A one-acre patch occurs along the Mount Signal Drain at the southern boundary of the CSE facility; a 0.4-acre patch occurs along the Mount Signal Drain just north of Fisher Road (**Attachment 1: Vegetation Mapbook**).

3.1.2.4 *Arrow Weed Scrub/Tamarisk Scrub and Tamarisk Scrub (AS/TS, AS/TS-D, TS and TS-D)*

Tamarisk thickets throughout the survey area are dominated by athel (*Tamarix aphylla*) and tamarisk (*T. ramosissima*). Athel has been planted between the agricultural fields and the Westside Main Canal. This species is encroaching into the desert scrub community to the west. Elsewhere through the survey area, tamarisk is associated with the earthen drains and canals. Periodic disturbances associated with vegetation removal in these facilities, promotes the continued establishment of tamarisk. Generally this species is sporadic along these aforementioned drains and canals. The more frequent the vegetation clearing the less prevalent the tamarisk. Approximately 202.6 acres (approximately 5 percent of the private land survey area) of arrow weed/tamarisk scrub and tamarisk scrub are present.

3.1.2.5 *Big Salt Bush Scrub – Bush Seepweed Scrub (SBSS and BSS-D)*

Small areas on the CSE facility that have been previously disturbed are now occupied by big saltbush (*Atriplex lentiformis*). Big saltbush is a large dense shrub forming impenetrable linear stands that line many of the berms and roads adjacent to some agricultural fields in the area. Generally no other native species are associated with big saltbush in these areas. Approximately 10.2 acres (<0.1 percent of the private land survey area) of big salt bush scrub is present.

3.1.2.6 *Palo Verde Woodland (PVW)*

A small area of blue palo verde (*Cercidium floridum* ssp. *floridum*) occurs adjacent to Greeson Wash, contiguous with the native habitats along Greeson Wash. These individuals are alongside a dirt road that borders one of the agricultural fields and as such has no understory species associated with this community. The understory is used for the placement of bee keeping hives. Approximately 1.4 acres (<0.1 percent of the private land survey area) of palo verde woodland is present.

3.1.2.7 *Developed/Disturbed Habitat (DEV/DH)*

Approximately 98.1 acres of developed/disturbed land occur within the survey area (approximately 2 percent of the private land survey area). These areas contain little to no vegetation. Disturbed areas include areas adjacent to the Imperial Valley Substation, Highway 98, and some of the larger canals. These areas are usually kept bare of vegetation by constant vehicle traffic but may support non-native weed species. Developed areas consist of lands that lack vegetation and include the Imperial Valley Substation, residential dwellings, agricultural buildings and storage areas.

3.1.2.8 *Mesquite Woodland (MW)*

The mesquite habitat along the southern portion of the Gen-tie just west of the Westside Main Canal is dominated solely by honey mesquite (*Prosopis glandulosa* var. *torreyana*). The stands are very dense and impenetrable. The density of the mesquite precludes the presence of any other plant species growing within these stands. Approximately 6.0 acres (<1 percent of the private land survey area) of mesquite - catclaw scrub, mesquite bosque, and mesquite woodland is present.

3.1.2.9 *Open Water (OW)*

The Westside Main Canal, as well as other agricultural irrigation canals that are unvegetated but holding water, are classified as open water. Approximately 13.6 acres (<1 percent of the survey area) occur in this cover type.

3.1.3 General Wildlife

The wildlife species observed in the private lands within survey area were typical of the disturbed and agricultural habitats, which provide cover, foraging, and breeding habitat for a variety of wildlife species. **Attachment 3** provides a list of all wildlife species observed.

3.1.3.1 *Invertebrates*

The survey area contains suitable habitat for a wide variety of invertebrates. Within the agricultural fields and along portions of the Gen-tie Line, harvester ants (*Pogonomyrmex* spp.), grasshoppers (*Orthoptera* spp.) and flies (*Diptera* spp.) were observed regularly.

Cabbage white (*Pieris rapae*) and other butterflies and moths (*Lepidoptera* spp.) were also regularly observed in all portions of the survey area.

3.1.3.2 Amphibians

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season.

American Bullfrog (*Rana catesbeiana*) was the only amphibian observed in the survey area. Bullfrogs were regularly seen and/or heard in several of the large drains that carry water almost permanently.

3.1.3.3 Reptiles

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain plant communities and soil types, although some of these species would also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter.

No reptile species were observed in the private land portions of the survey area.

3.1.3.4 Birds

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the homogeneity of much of the habitat within the private land portions of the survey area, bird diversity was relatively low, but did increase in and around the larger drains and Greeson Wash.

A large number of Cliff Swallow (*Petrochelidon pyrrhonota tachina*) and Northern Rough-winged Swallows (*Stelgidopteryx serripennis*) are present near the State Highway 98 bridge that crosses over the Westside Main Canal immediately west of the CSE Facility. The underside of the bridge is host to hundreds of mud-nests. The active agricultural fields also provide suitable foraging habitat for these birds.

During winter avian use surveys, Western Meadowlark (*Sturnella neglecta*) was the most frequently detected species (264 total detection; 2.06 detections per point) as well as the most widespread having been observed at 86 points (67.19%). Other frequently detected species include Horned Lark (*Eremophila alpestris*; 16 detections, 0.98 detections per point), Black Phoebe (*Sayornis nigricans*; 47 detections, 0.37 detections per point), Long-billed Curlew (*Numenius americanus*; 40 detections, 0.31 detections per point), and Song Sparrow (*Melospiza melodia*; 32 detections, 0.25 detections per point). Other widespread species include Horned Lark (64 points, 50.0%), Black Phoebe (40 points, 31.25%), and Mourning Dove (*Zenaidura macroura*; 30 points, 23.44%). Horned Larks were by far the most numerous

species during the survey (747 observed; 25.94% of all individuals observed). Long-billed Curlews were the second most numerous species (492 observed, 17.08% of all individuals observed). The most commonly observed species were all common agricultural associates.

Spring avian surveys were conducted in 2011. However, the final survey report was unavailable at the time this document was written.

3.1.3.5 *Mammals*

Suitable mammal habitat is limited in the agricultural lands within the survey area. Desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert kangaroo rat (*Dipodomys deserti deserti*), and coyote (*Canis latrans*) were detected often within all project component survey areas through direct observation as well as burrows, tracks, and scat, though not as frequently as in native habitats.

3.1.4 Sensitive Biological Resources

3.1.4.1 *Special Status Plant Species*

No sensitive plant species were observed on the CSE Facility, private land portions of the Gen-tie line or associated buffers, and none are expected to occur given the limited amount of suitable native habitat and the ongoing disturbances related to the agricultural activities.

3.1.4.1.1 *Federally Listed Species*

Based on the literature review, no federally-listed threatened or endangered plant species were identified as having the potential to occur within the survey area. No federally-listed threatened or endangered species were observed during focused rare plant surveys.

3.1.4.1.2 *State-listed Species*

Based on the literature review, no state-listed plant species were identified as having the potential to occur within the private lands portion of the survey area. No state-listed species were observed on-site during focused rare plant surveys.

3.1.4.1.3 *BLM Sensitive Species*

BLM sensitive species include all species currently on CNPS List 1B, as well as others that are designated by the California BLM State Director. No BLM sensitive species were identified as having the potential to occur within the private lands portion of the survey area. No BLM sensitive species were observed during focused rare plant surveys.

3.1.4.1.4 *Priority Plant Species*

Priority plant species are rare, unusual, or key species that are not sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2–4.

Two priority plant species were identified as having the potential to occur within the private lands portion of the survey area, including California satintail (*Imperata brevifolia*) and Dwarf germander (*Teucrium cubense* ssp. *depressum*). These species are discussed below.

California satintail (*Imperata brevifolia*). California satintail is reported immediately east of the site. This species occurs in desert wash and riparian scrub habitats. It has a moderate to high potential to occur within the riparian areas along Greeson Wash on the northern portion of the CSE Facility. This species is not expected to occur along the southern portion of Greeson Wash on the CSE Facility due to the disturbed condition of the wash, nor is it expected to occur within the drains and canals on the remainder of the CSE Facility. The riparian habitat along the larger canals and drains on the CSE Facility support non-native (e.g., tamarisk) or native species that grow in very dense stands (cattails and arrow weed) that generally restrict the presence of other species due to their density, and they are periodically cleared of vegetation; therefore, this uncommon species is not expected to occur within these features.

Dwarf germander (*Teucrium cubense* ssp. *depressum*). Dwarf germander is another species that has a moderate to high potential to occur within the riparian areas along Greeson Wash on the northern portion of the CSE Facility. This species occurs in wet sandy washes. This species is not expected to occur along the southern portion of Greeson Wash due to the disturbed condition of the wash, nor is it expected to occur within the drains and canals on the remainder of the CSE Facility.

3.1.4.2 *Special Status Wildlife Species*

Fifteen special status wildlife species were determined to have the potential to occur within survey area and those whose occurrence is most pertinent to the private land portions of the survey area are discussed in detail below. This include federally listed species, state listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

3.1.4.2.1 *Federally Listed Species*

The following federally listed species are discussed in this section because their habitat requirements and/or potential for occurrence are most pertinent to the private land portion of the survey area, though the following discussions evaluate the potential for occurrence in both the private land portion of the survey area as well as the Gen-tie Line survey area. Peninsular bighorn sheep (*O. c. nelsoni*; endangered) is discussed in **Section 3.2.4.2.1**. The following species discussions are taken directly from the CSE Biological Assessment.

Southwestern Willow Flycatcher

Species Profile

Southwestern Willow Flycatcher (SWFL) is federally listed as endangered, and all willow flycatchers in California, including the southwestern and two other subspecies (*E. t. brewsteri* and *E. t. adastus*) are state-listed as endangered. Critical habitat was designated for the SWFL on October 19, 2005 in San Diego County, California and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

Willow Flycatchers are in the Tyrannidae family and are one of ten species of Empidonax flycatchers in the United States. Empidonax flycatchers are difficult to distinguish visually but have distinctive songs. SWFL is generally paler than other willow flycatcher subspecies and differs in morphology. SWFLs are migrants, arriving on their breeding grounds in mid-May to early June (Garrett and Dunn 1981; Unitt 2004). SWFL migrates south from its breeding range in August or September. Several subspecies of Willow Flycatcher are known to migrate through southern California, with the most common migrant being *E. t. brewsteri* (Unitt 2004). It is virtually impossible to differentiate between subspecies of Willow Flycatcher during migration. SWFL requires riparian habitat with willow (*Salix* spp.) thickets (Unitt 2004) for breeding. Understory species include mule fat (*Baccharis* sp.) and arrow weed (*Pluchea* sp.). SWFLs also nest in areas with tamarisk (*Tamarix* spp.) and Russian olive (*Eleagnus angustifolia*) where these species have replaced the native willow. Surface water is required at nesting sites. Estimated nesting habitat patch size varies from 0.2 to 1.5 acres. Nests are constructed in densely vegetated thickets with trees between 13 and 23 feet in height (Tibbitts et al. 1994; Sogge et al. 2010)

Threats in the United States include loss of riparian habitat due to water diversion, flood control, urbanization, grazing, and invasion of non-native species. Parasitism by brown-headed cowbirds (*Molothrus ater*) has been a significant factor in the decline of this species in California, Arizona and elsewhere (Sedgwick 2000).

SWFL breeds in southern California, Arizona, New Mexico, southern Nevada, southern Utah, western Texas, northwestern Mexico, and possibly southwestern Colorado. It winters in Mexico, Central America, and possibly northern South America. Historically common in all the lower-elevation riparian areas of southern California, the SWFL was found in the Los Angeles Basin, San Bernardino/Riverside County area, and San Diego County (Unitt 2004). SWFL persists in the Colorado, Owens, Kern, Mojave, Santa Ana, Santa Margarita, San Luis Rey, Santa Clara, Santa Ynez, Sweetwater, and San Dieguito river systems and in San Timeteo, Pilgrim, and Temecula Creeks.

Critical Habitat

Critical habitat was designated for the SWFL on October 19, 2005 in San Diego County, California and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

Occurrence

SWFLs are not likely to nest within the survey area, but may migrate through the action area and possibly forage during migration within the arrow weed scrub and tamarisk scrub habitats along the Westside Main Canal, Mt. Signal Drain, and Greeson Wash (**Attachment 1: Figure 4**). Flycatcher vocalizations have been heard during recent biological surveys (including protocol-level SWFL surveys) in and near the action area.

Two Willow Flycatcher subspecies are known to migrate through the Imperial Valley and in the vicinity of the Imperial Valley Energy Center (ISEC) West, ISEC South and CSE Project Areas – Southwestern Willow Flycatcher (*Empidonax trailii extimus*) and Northwestern Willow Flycatcher (*Empidonax trailii brewsteri*). These two subspecies are nearly identical in appearance (Pyle 1997), have nearly identical vocalizations (Unitt 1987), and are, thus, nearly impossible to distinguish in the field.

Willow Flycatchers were incidentally detected during the Burrowing Owl surveys conducted for CSE by Heritage Environmental Consultants (Heritage) and for ISEC West and ISEC South by Recon biologists. Heritage detected at least two Willow Flycatchers on May 21, 2009 along the Wormwood Canal in a patch of phragmites very close to the Westside Main Canal (this detection is located outside of the CSE action area). Recon detected Willow Flycatchers along the Westside Main Canal in locations south and north of the Heritage detections on June 2, 2010. The Recon detections occurred in sparse mesquite and tamarisk thickets in the ISEC West and ISEC South Project Areas. It is unknown which of the subspecies of Willow Flycatcher was detected, but the dates for these observations conform to the peak migratory period of *E. t. brewsteri*, which is known to migrate late in the season (Unitt 1987).

Recon initiated protocol-level surveys to determine the subspecies and migration status of the Willow Flycatchers detected on the ISEC West and ISEC South sites. The survey areas consisted of mesquite and tamarisk thickets and arrow weed thickets in proximity to surface water (Westside Main Canal) and were conducted in accordance with the project clearance survey protocol outlined in Sogge et al. (2010).

The Willow Flycatchers observed by Recon were located within linear thickets of mesquite, saltbush, and phragmites, and in all cases were spontaneously giving “fitz-bew” and “whitt” calls. On the subsequent survey on June 13, 2010, for ISEC West, a single bird gave repeated “whitt” calls in response to the broadcast calls of Southwestern Willow Flycatchers. It was not until the call of the northwest race of Willow Flycatcher was broadcast that the individual responded with a “fitz-bew” call. No Willow Flycatchers were detected during the final three surveys (June 23, July 7, and July 13, 2010), and none were detected during any of the protocol-level surveys for ISEC South. Based on the response to the broadcast of the northwestern race, and negative detections later in the season, it was concluded that the Willow Flycatchers detected were migrants. No resident or nesting Southwestern Willow Flycatchers were detected (RECON 2010b).

The Willow Flycatcher detections by Recon both occurred along the Westside Main Canal. One detection was located approximately 0.3 miles south of Interstate 8 (I-8; approximately 7

miles northwest of the proposed CSE Facility), and the other approximately 10.7 miles south of I-8 (approximately 0.2 miles south of the proposed CSE Facility; RECON 2010b and 2010c). The Heritage detection occurred along a section of the Wormwood Canal that runs parallel to the Westside Main Canal, approximately 9.2 miles south of the I-8 (approximately 0.75 miles northwest of the proposed CSE Facility and 1 mile northwest of the proposed Gen-tie Line; Heritage 2010).

Heritage also conducted winter and spring avian point count surveys for the proposed project (Heritage 2011a). One transect had point count locations located along the Wormwood Canal near the proposed Gen-tie Line crossing; another transect had point count locations along the Mount Signal Drain and Greeson Wash. No Willow Flycatchers were detected during these surveys (eight total surveys), though they were not conducted during the migration season.

Breeding Southwestern Willow Flycatchers are riparian obligates, typically nesting in relatively dense riparian vegetation where surface water is present or soil moisture is high enough to maintain the appropriate vegetation characteristics (USFWS 2002). While some of the vegetation communities within the CSE survey area include some species associated with riparian areas, and some of the canals and drains have surface water and high soil moisture, none of the areas supports vegetation that is tall or dense enough for nesting; therefore, there is no Willow Flycatcher breeding habitat in the CSE survey area. Additionally, species occurrence records from the California Natural Diversity Database (State of California 2011) do not indicate the presence of Willow Flycatchers in the vicinity of the survey area. Therefore, the available data indicate that there is no known suitable nesting habitat for Southwestern Willow Flycatchers in or around the CSE survey area and that Southwestern Willow Flycatchers would be expected to be present in the CSE survey area only as migrants in the vicinity of the Westside Main Canal, Mount Signal Drain, and Greeson Wash. Accordingly, the BLM and USFWS were contacted and agreed that protocol-level surveys for Southwestern Willow Flycatchers are not required as part of the biological resources studies conducted for the CSE Project (Hund 2011).

These data indicate that Willow Flycatchers (*E.t. extimus*, *E.t. brewsteri* or both) migrate through the Westside Main Canal corridor and may forage in the tamarisk and arrow weed vegetation during migration; however, this analysis will assume they are the southwestern subspecies in order to provide the most conservative assessment. Potential SWFL migration habitat in the action area is shown on **Attachment 1: Figure 4**.

Yuma Clapper Rail

Species Profile

The Yuma Clapper Rail (YCR) was federally listed as endangered March 11, 1967, under the Endangered Species Preservation Act of October 15, 1966, and state-listed as threatened February 22, 1978 (USFWS 2006). The YCR is also protected under the Migratory Bird Treaty Act and similar State laws. Critical habitat has not been established for this species.

This bird breeds in freshwater marshes along the Colorado River from Needles, California, to the Colorado River delta and at the Salton Sea. The YCR breeds in freshwater marshes and

brackish waters and nests on firm, elevated ground, often under small bushes. It typically occupies emergent marsh vegetation, such as pickleweed and cordgrass, as well as mature stands of bulrush and cattail around the Salton Sea. High water levels may force them into willow and tamarisk stands. Tamarisk is also used after breeding and in winter at some sites. Nests are built between March and late July in clumps of living emergent vegetation over shallow water. Typical home ranges exceed 17 acres, increasing after the breeding season.

Crayfish dominates the diet of YCR, though small fish, tadpoles, clams, and other aquatic invertebrates are also consumed (Ohmart and Tomlinson 1977; Anderson and Ohmart 1985; Todd 1986; Eddleman 1989; Conway 1990 in USFWS 2010a). The seasonal availability of crayfish in different habitat locations corresponds to shifts in habitat use by YCRs (Bennett and Ohmart 1978; Eddleman 1989, Conway et al. 1993 in USFWS 2010a).

YCRs are mostly active during daylight hours, with little to no activity after dark. Daily movement is lowest during the late breeding period (May-July) and highest during the late winter (January–February; USFWS 2010a). Juvenile dispersal, movements by unpaired males during the breeding season and by both sexes post-breeding, and relocations in response to changing water levels are also documented (USFWS 2010a). Studies to determine migratory patterns showed a difficulty in locating the YCR during winter months without telemetry. While the YCR was previously thought to be migratory, experts have determined that they are year-round residents, albeit discreet during winter months, of the lower Colorado River and Salton Sea (USFWS 2010a).

Habitat destruction and depredation by mammals and raptors have caused population declines. It is also possible that increased selenium concentrations from agricultural runoff are affecting reproduction (Unitt 2004; Zeiner 1989).

Critical Habitat

No critical habitat has been designated for YCR, and none is proposed.

Occurrence

This species is not likely to nest within the survey area. There are two small patches of typha and typha/phragmites habitat in the action area: a one-acre patch occurs along the Mount Signal Drain at the southern boundary of the CSE Facility; a 0.4-acre patch occurs along the Mount Signal Drain just north of Fisher Road. These were not mapped due to the extremely small size; however, they can be seen on **Attachment 1: Vegetation Mapbook Pages C-5 and D-2**. Both of these areas exhibit steep shelving to the water level, creating water depths deeper than those preferred by YCR. Both are also narrow and linear in nature. The sides of the channels are steep and would inhibit nesting, and vehicles travel the elevated hard-packed dirt roads on either side of the channels regularly. Given the lack of suitable breeding habitat within the channels and the high level of human disturbance adjacent to the channels, this species is not likely to nest within this cattail marsh vegetation.

There is a low potential for YCR to forage in the cattail marsh vegetation or winter in the tamarisk thickets adjacent to the Westside Main Canal, Mount Signal Drain, and Greeson Wash. The active agricultural fields immediately adjacent to the cattail marshes provide a

constant source of human disturbance in the area, and these practices will continue to occur after construction is completed. The nearest known location for this species is within Wixom Drain near Fig Lagoon, approximately 2.7 miles north of the action area north of the Imperial Valley Substation (USFWS 2010b). The New River is approximately 2.25 miles northeast of the action area and may provide the nearest suitable nesting habitat for this species. Given the distance from suitable and potential nesting habitat and level of existing human disturbance due to agricultural practices, there is a very low potential for YCR to forage within the isolated cattail marsh habitats or to winter in the tamarisk vegetation within the survey area. In addition, this species was not incidentally observed during numerous biological surveys conducted in and near these habitats for the CSE Project (Heritage 2011a) or the ISEC West and South Projects (RECON 2010d and 2010e).

Mountain Plover

Species Profile

On June 29, 2010, USFWS announced the proposed listing of the Mountain Plover as threatened under the ESA of 1973, as amended (USFWS 2010a). The Mountain Plover (family Charadriidae) is a small terrestrial shorebird, which averages 8 inches in length. Mountain Plovers are light brown above and white below, and are distinguished from other plovers by the lack of a contrasting dark breast band. Mountain Plovers are migratory, wintering in California, southern Arizona, Texas, and Mexico, and breeding primarily in Colorado and Montana from April through June. Breeding also occurs in Arizona, Utah, Wyoming, Nebraska, Kansas, Oklahoma, Texas, and New Mexico. The Sacramento, San Joaquin, and Imperial valleys of California are thought to support the greatest number of wintering Mountain Plovers (USFWS 2010c).

Throughout their range, Mountain Plovers are found within sparsely vegetated areas such as xeric shrublands, shortgrass prairie, and barren agricultural fields, but rarely near water. They are a diurnal species, foraging during daylight hours for ants, beetles, and crickets, and grasshoppers with a series of short runs and stops.

Mountain Plovers nest in areas with short vegetation and bare ground, including near livestock watering tanks. Nests are constructed as a depression in the ground and lined with organic debris in areas with at least 30-percent bare ground and with nearby conspicuous objects such as rocks or forb clumps. Vegetation at nest sites is typically less than 4 inches in height and slope is less than 5 percent. Nest sites are typically dominated by needle-and-thread (*Stipa comata*), blue grama (*Bouteloua gracilis*), buffalo grass (*Buchloe dactyloides*), plains prickly pear cactus (*Opuntia polyacantha*), June grass (*Koeleria cristata*), and sagebrush (*Artemisia* sp.; USFWS 1999). Mountain Plovers have historically nested on black-tailed prairie dog (*Cynomys ludovicianus*) towns. Clutch size ranges from 1–4 eggs.

Mountain Plovers use non-breeding (wintering) habitats that are similar to those they use on breeding grounds: heavily grazed pastures, burned fields, fallow fields, and tilled fields (Hunting et al. 2001 in Andres and Stone 2009; Knopf and Wunder 2006 in Andres and Stone 2009). Mountain Plovers were historically associated with kangaroo rat (*Dipodomys*) precincts and California ground squirrel (*Spermophilus beecheyi*) colonies within the Central

Valley of California (U.S. Fish and Wildlife Service 2003 in Andres and Stone 2009). In California's Imperial Valley, they preferentially use alfalfa fields that have been harvested and grazed by domestic sheep, as well as Bermuda grass fields that have been burned post-harvest (Wunder and Knopf 2003 in Andres and Stone 2009).

Mountain Plovers are considered to have been historically common in western and central Kansas; between Fort Supply, Oklahoma, and Dodge City, Kansas; western South Dakota; and they may have bred in northern Mexico (USFWS 1999). Information from the Breeding Bird Survey and Christmas Bird Count data shows a decline in the Mountain Plover at a rate of 2.7–2.8 percent per year from 1966 to 2007, although the data are characterized as having deficiencies (Andres and Stone 2009).

Threats to the Mountain Plover include loss of habitat due to conversion of grasslands to urban and active agricultural uses in their breeding grounds, prairie dog control, domestic livestock management; human disturbance during the nesting season; grasshopper control measures; use of pesticides; and other land uses throughout their range (USFWF 1999). Specific conservation issues for the Mountain Plover in the Imperial Valley include the variable nature of agricultural crops; although cultivated fields are abundant in the Central and Imperial Valleys, varying proportions may be suitable in any given year (Andres and Stone 2009). Economic forces in any given year dictate crop selection and livestock operations, which can positively or negatively affect Mountain Plover habitat (Andres and Stone 2009).

Because Mountain Plovers are relatively tolerant of disturbance, human intrusion and disturbance have not been identified as major winter conservation threats, although response varies for individual birds (Andres and Stone 2009). Mountain Plovers have been described as extremely tolerant of machinery, including off-road vehicles, tractors, and military aircraft (Andres and Stone 2009). Plovers will quickly leave roost areas when approached by walking humans (Knopf and Wunder 2006 in Andres and Stone 2009).

Critical Habitat

No critical habitat has been designated for the Mountain Plover, and none is proposed.

Occurrence

Mountain Plovers are known to over-winter in the Imperial Valley, foraging within the large agricultural complex that surrounds El Centro and spans from Mexico to the Salton Sea. In 2009, the Imperial County Agricultural Crop and Livestock Report (Imperial County 2009) reported approximately 353,128 acres of field crops to be grown within this large agricultural complex, including primarily alfalfa hay, Bermuda grass hay, Kleingrass hay, pastured crops, Sudan grass hay, and wheat. An additional 62,237 acres of primarily alfalfa and Bermuda grass were grown as seed crops (Imperial County 2010), totaling over 415,365 acres of alfalfa and grass crops. Additional grass crop fields are present south of the border in Mexico. As discussed previously, Mountain Plovers forage in the fields at various stages of the crop rotation, including when soils are freshly tilled prior to planting; when the crops are young and vegetative growth is still under 25 centimeters in height; after the crops have been harvested, and short stubble is present; and after the fields have been burned to prepare them for the next crop.

A survey conducted in 1999 by the Point Reyes Bird Observatory catalogued the avifauna using the Salton Sea and surrounding agricultural complex (Shuford et al. 2000). The survey counted approximately 2,486 Mountain Plovers in February, 2,790 in November, and 3,758 in December in the Imperial Valley in 1999. The mean number for these three surveys represents about 30–38 percent of the species' estimated population of 8,000–10,000 individuals (anonymous 1999 in Shuford et al. 2000). On prior surveys across the California wintering range, 2,072 Mountain Plovers were recorded in the Imperial Valley in 1994, and 755 Mountain Plovers were recorded in 1998. This represented 61 and 35 percent of the totals of 3,390 and 2,179 individuals found statewide, respectively (B. Barnes in CDFG unpubl. data; K. Hunting in Shuford et al. 2000).

The higher totals in the Imperial Valley in 1999 are thought to reflect an increase in observer coverage over prior years rather than a population increase (Shuford et al. 2000). Plovers were distributed widely over the Imperial Valley with no consistent areas of concentration in 1999, presumably reflecting the shifting availability of suitable fields with the temporal and spatial variation in cultivation practices (Shuford et al. 2000). Concentrations of Mountain Plovers in relatively few sites in February 1999 appeared to reflect a preference by plovers for burned fields during that season (Shuford et al. 2000). The survey shows flocks foraging throughout the agricultural complex during the winter, including a large flock (>250 individuals) that was observed approximately ½ mile south of the proposed CSE Facility, a medium flock (51-250 individuals) approximately in the action area near the intersection of Highway 98 and Brockman Road, and a small flock (1-50 individuals) approximately one mile northeast of the action area in February 1999.

A more recent survey, coordinated by the Natural History Museum of Los Angeles County (NHMLAC), was conducted throughout the Imperial Valley on January 21–23, 2011. This survey recorded 877 Mountain Plovers within approximately 20 percent of the 23 search areas; no Mountain Plovers were detected south of Interstate 8 (Molina 2011). This survey shows a marked decline in population numbers from previous surveys coordinated by the NHMLAC in 2007 (which yielded 4,687 birds within 86 percent of areas surveyed), and 2008 (which yielded 2,955 birds within 74 percent of the search areas).

This decline in population numbers does not appear to relate directly to the amount of foraging habitat available in the Imperial Valley. The acreage of agricultural fields fluctuated by tens of thousands of acres between 2005 and 2009, but the fluctuations in acreage remained within ±15 percent of the average acreage every year (**Table 4**; Imperial County 2006, 2007, 2008, 2009, 2010). The population numbers of Mountain Plover decreased from 2007 to 2008 (Molina 2011), while the acreage of field crops (foraging habitat) increased from 2007 to 2008.

Table 4 – Agricultural Crop History for 2005-2009 in the Imperial Valley

Year	Field Crop (acres)	Seed Crop (acres)	Total (Acres)	Estimated Habitat During Winter Months (50% of Total)	Variation From Prior Year	Variation From Average
2009	353,128	62,237	415,365	207,683	(30,759)	7,279
2008	412,335	64,547	476,882	238,441	31,583	23,480
2007	352,156	61,561	413,717	206,859	(11,179)	8,103
2006	361,383	74,691	436,074	218,037	14,249	3,076
2005	351,174	55,711	407,577	203,789	---	11,173
Average	366,174	63,749	429,923	214,962	---	10,622

Source: Imperial County (2006-2010)

Notes: Variation in acres of estimated foraging habitat varies year to year by 10,000 to 30,000 acres.

Total estimated foraging habitat has been relatively stable or increasing from 2005-2010.

As the crops and rotation schedules on any given field often differ from year to year, the amount of foraging habitat available to Mountain Plovers also differs from year to year and throughout the year. Given the constraints of available crop rotation history, information provided by landowners, and examination of the current conditions of the fields, a conservative approach was taken to estimating potential available habitat within the proposed CSE Facility. Assuming that any given crop/field is suitable as foraging habitat for 50 percent of the wintering months of November through February—either providing habitat after being planted until it grows over 9.84 inches, or after the crops have been harvested and/or burned mid-winter in preparation for a spring crop—it is estimated that approximately 930 of the 1,860 acres would be available as moderate to highly suitable foraging habitat within the proposed solar field at any given time during winter. This assumes the current crop types (alfalfa, wheat, and Bermuda grass).

On January 18, 2011, USFWS provided the Interim—Survey Guidance for Wintering Mountain Plover (*Charadrius montanus*) in the Imperial Valley (USFWS 2011). It provides guidance on conducting presence/absence surveys and determining winter population numbers for Mountain Plover. Heritage biologists conducted surveys in accordance with the Interim Survey Guidance from February 9 through February 23, 2011. The Survey Guidance suggests three search periods at least five days apart, using spotting scopes or binoculars to survey from observation points such that all suitable habitats are observed within the survey area. The Survey Guidance defines suitable habitat as “abandoned, idle and active agricultural fields with bare ground or vegetation shorter than 25 centimeters (9.84 inches)”. Survey details are included in Heritage 2011a and 2011b.

Approximately 1,860 acres of agricultural fields were surveyed within the CSE Facility (**Attachment 1: Figure 6**). No Mountain Plovers were detected within the CSE survey area and none were detected during surveys at the nearby ISEC South project (Heritage 2011b; RECON 2010a).

3.1.4.2.2 *State Listed Species*

Four state-listed wildlife species were evaluated based on their known occurrences in Imperial County: greater Sandhill Crane (*Grus canadensis tabida*), Yuma clapper rail, barefoot banded gecko (*Coleonyx switaki*), and Peninsular bighorn sheep. Of these species, the Yuma clapper rail and Peninsular bighorn sheep are federally listed and discussed in Sections 3.1.4.2.1 and 3.2.4.2.1. The greater Sandhill Crane and barefoot banded gecko species are discussed below.

Greater Sandhill Crane (*Grus canadensis tabida*)

Species

The Greater Sandhill Crane is state-listed as threatened and is protected under the federal MBTA and similar State legal protections. This species is known to winter in Imperial County California (Zeiner et al. 1989).

Habitat

Both Greater (*Grus canadensis tabida*) and Lesser (*G. c. canadensis*) Sandhill Cranes occur in California. Historically, *G. c. tabida* was a fairly common breeder on the northeastern plateau (Zeiner et al. 1989). It is now reduced greatly in numbers, and breeds only in Siskiyou, Modoc, Lassen, Sierra Valley, Plumas and Sierra counties (Zeiner et al. 1989). In summer, this subspecies occurs in and near wet meadows as well as shallow lacustrine, and freshwater emergent wetland habitats. It winters primarily in the Sacramento and San Joaquin valleys from Tehama County south to Kings County, where it frequents annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains. The migratory subspecies *G. c. canadensis* winters in similar habitats in the San Joaquin and Imperial valleys (Zeiner et al. 1989), and to a lesser extent in the Sacramento Valley. In southern California, it concentrates on the Carrizo Plain, San Luis Obispo County, with smaller flocks near Brawley, Imperial County, and Blythe, Riverside County (Zeiner et al. 1989). The latter two flocks may be partly, or largely, *G. c. tabida*, which formerly wintered more commonly in southern California, but which has declined greatly there and throughout its range. Outside of known wintering grounds, *G. c. tabida* is extremely rare except that it migrates over much of interior California. A few coastal sightings of Greater Sandhill Crane exist from Marin County southward, but there are no records from offshore islands. When foraging, the Greater Sandhill Crane prefers open shortgrass plains, grain fields, and open wetlands (Zeiner et al. 1989), but it may also feed on dry plains far from water. The Greater Sandhill crane feeds on grasses, forbs, especially cereal crops (newly planted or harvested); and also uses its long bill to probe in soil for roots, tubers, seeds, grains, earthworms, and insects. It will also feed on larger prey, such as mice, small birds, snakes, frogs, and crayfish.

Occurrence

The greater sandhill crane is likely to forage within the agricultural fields within the private lands portion of the survey area at times during winter, but this species is not expected to breed in the survey area.

Barefoot Banded Gecko (*Coleonyx switaki*)

Species

The barefoot banded gecko is state-listed as threatened. Its known range occurs along the eastern face of the Peninsular Ranges in San Diego and Imperial Counties, and little information is known about its extended range or abundance.

Habitat

Habitat for the barefoot banded gecko is found in arid rocky areas on flatlands, canyons, and thornscrub, especially where there are large boulders and rock outcrops, and where vegetation is sparse (Murphy 1974). In California, this species inhabits the arid desert slopes of the eastern side of the Peninsular Ranges from Borrego Springs south to the Baja California border, and may occur at elevations from near sea level to over 2,000 ft. (700 m). An isolated population is known to occur in the Coyote Mountains of Imperial County. It ranges farther south in Baja California along the eastern edge of the mountains to near Santa Rosalia (Murphy 1974).

The barefoot banded gecko is insectivorous. Most likely, the breeding season lasts from spring to summer, May to July. Females lay one or two eggs, roughly 3 weeks after mating, and may lay eggs several times each season. Eggs hatch after around 2 months, in late summer to early fall (Murphy 1974).

Occurrence

No barefoot banded geckos are expected to occur within the private lands portion of the survey area based on a lack of suitable habitat in the form of large boulders and rocky outcrops.

3.1.4.2.3 BLM Sensitive Wildlife

Six BLM sensitive wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro Field Office's jurisdiction: Colorado Desert fringe-toed lizard (*Uma notata notata*), flat-tailed horned lizard, barefoot banded gecko, Western Burrowing Owl, California leaf-nosed bat (*Macrotus californicus*), and pallid bat (*Antrozous pallidus*). The barefoot banded gecko is also a state-listed species and is discussed in **Section 3.1.4.2.2**.

The following BLM sensitive species are discussed in this section because their habitat requirements and/or potential for occurrence are most pertinent to the private land portion of the survey area, though the following discussions evaluate the potential for occurrence in both the private land portion of the survey area as well as the Gen-tie Line survey area. Colorado desert fringe-toed lizard and flat-tailed horned lizard are discussed in **Section 3.2.4.2.3**.

Burrowing Owl (*Athene cunicularia*)

Species

The Burrowing Owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the MBTA and California Fish & Game Code §§ 3503, 3503.5, 3513. Nesting occurs from March through August. Burrowing Owls typically form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing Owls are opportunistic feeders, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities remain in the Central and Imperial valleys (DeSante et al.1996), where this species is a year-round resident in Imperial County.

Habitat

The Burrowing Owl is primarily restricted to the western United States and Mexico. Habitat for the Burrowing Owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County it can be found in desert scrub, grassland, and agricultural areas, where it digs its own or occupies existing burrows.

Occurrence

During focused burrowing owl surveys several active Burrowing Owl burrows were observed within the survey area, primarily associated with berms and ditches lining the active agricultural fields (Heritage 2010, Heritage unpub. data). The 2010 focused burrowing owl survey covered only a portion of the proposed Project Area and associated buffers. The 2011 focused Burrowing Owl surveys were designed to cover the additional portions of the CSE Facility Project Area and associated buffers as well as the Gen-tie line, as currently proposed. These surveys have been completed and identified several active burrows within the survey area. However, the final results were not available at the time of this document. **Figure 6** shows the location of active burrows in and around the Project Area.

California Leaf-nosed Bat (*Macrotus californicus*)

Species

The California leaf-nosed bat is a Species of Special Concern and a BLM sensitive species. This bat is found primarily in desert areas of the southwestern United States, and ranges through Imperial County and the eastern parts of Riverside and San Diego Counties in California.

Habitat

The California leaf-nosed bat is commonly found in desert habitats that include riparian, wash, scrub, succulent scrub, alkali scrub, and palm oasis. The species is non-migratory and active year-round, requiring rocky, rugged terrain, caves, or mine shafts for roosting. These

gregarious bats have been observed in groups of up to 500, with both sexes roosting together during the non-breeding season and separately during spring and summer. It forages over flats and washes within one mile of its roost, and is a "gleaning" insectivore which captures prey such as crickets, grasshoppers, beetles, and sphinx moths straight from the ground or foliage rather than in flight (BCI 2010). It typically hunts within a few feet of the ground using its superior eyesight to search for insects. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

Occurrence

The desert washes, thickets, agricultural fields and irrigation channels within the survey area offer foraging opportunities for this species. The nearest reported location for the California leaf-nosed bat is approximately 25 miles northwest of the proposed project (State of California 2010b). No known roosts occur in the survey area, and there is no suitable roosting habitat within or near the survey area.

Pallid Bat (*Antrozous pallidus*)

Species

The Pallid bat is a Species of Special Concern and a BLM sensitive species. It is a locally common yearlong resident of low elevations throughout most of California.

Habitat

This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and forests at elevations ranging from sea level up through mixed conifer forests. The species occurs most commonly in open, dry habitats and prefers rocky areas for roosting. Pallid bats are social, commonly roosting in multi-species groups of 20 or more. The day roosts, such as caves, crevices, and mines, must protect the bats from high temperatures. The bats forage low over open ground, and consume large, hard-shelled prey items such as beetles, grasshoppers, cicadas, spiders, scorpions, and Jerusalem crickets. Pallid bats are very sensitive to disturbance at the roosting sites as these roosts are crucial for metabolic economy and juvenile development. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

Occurrence

The entire survey area offers foraging opportunities for this species. The nearest reported location for the pallid bat is approximately 26 miles west of the proposed project (State of California 2010b). Roosts are not known to occur in the survey area, and there is no suitable roosting habitat within or near the survey area.

3.1.4.2.4 California Species of Special Concern and Fully Protected Species

Four species that are classified as CDFG Species of Special Concern were observed within the survey area or were observed during surveys for nearby projects (RECON 2010a, 2010b); Loggerhead Shrike, Crissal Thrasher (*Toxostoma crissale*), Least Bittern (*Ixobrychus exilis*) and LeConte's Thrasher (*T. lecontei lecontei*). Golden Eagle (*Aquila chrysaetos*), a CDFG

Fully Protected Species, and protected under the Bald and Golden Eagle Protection Action, MBTA, and Fish & Game Code sections 3503, 3503.5, and 3513, was also observed within the Project Area (Heritage 2011a). The following discussions evaluate the potential for occurrence of California Species of Special Concern and Fully Protected Species in both the private land portion of the survey area as well as the Gen-tie survey area. Golden Eagles are discussed in **Section 3.1.4.2.3**.

Loggerhead Shrike (*Lanius ludovicianus*)

Species

The Loggerhead Shrike is a CDFG Species of Special Concern and is a year-round resident in Imperial County.

Habitat

The Loggerhead Shrike inhabits most of the continental United States and Mexico and is a year-round resident of southern California. The Loggerhead Shrike prefers open habitat with perches for hunting and fairly dense shrubs for nesting (Yosef 1996). In southern California, Loggerhead Shrikes inhabit grasslands, agricultural fields, chaparral, and desert scrub (Unitt 1984). Their breeding season is from March to August. Loggerhead Shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). Loggerhead Shrikes feed on small reptiles, mammals, amphibians, and insects that they often impale on sticks or thorns before eating. Loggerhead Shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996).

Occurrence

Loggerhead Shrikes were observed regularly within the private land portions of the survey area. Six Loggerhead Shrike observations were recorded at three locations during the winter avian use surveys (**Figure 8**). The agricultural habitats associated with the Project Area provide suitable foraging habitat for this species. No Loggerhead Shrike nests were identified, though the species may nest in mesquite or tamarisk habitats adjacent to the private land portions of the survey area.

Crissal Thrasher (*Toxostoma crissale*)

Species

The Crissal Thrasher is a CDFG Species of Special Concern and is a year-round resident in Imperial County.

Habitat

A resident of southeastern California deserts, it is still fairly common in Colorado River Valley but local and uncommon elsewhere. This species occupies dense thickets of shrubs or low trees in desert riparian and desert wash habitats. In eastern Mojave Desert of San Bernardino and southeastern Inyo counties, it also occurs in dense sagebrush and other shrubs in washes within juniper and pinyon–juniper habitats, up to 1800 m (5900 ft). It is also a resident in the Imperial, Coachella, and Borrego valleys, but numbers have declined markedly in recent

decades (Grinnell and Miller 1944; Remsen 1978; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species forages mostly on the ground, especially between and under shrubs. It uses its bill to dig in friable soil and to probe in litter. Its diet is poorly known, but includes insects, other invertebrates, berries, and other small fruits, seeds, and occasionally small lizards (Bent 1948 as cited in Zeiner 1989). Breeding season for the crissal thrasher lasts from February into June with a peak in March and April.

The Crissal Thrasher's numbers have been reduced greatly by removal of mesquite brushland for agricultural development and by introduction of tamarisk. Off-road vehicle activity also may also degrade habitat and disturb thrashers (Zeiner 1989).

Occurrence

This species has been observed within mesquite thickets associated with nearby projects (RECON 2010). The active agricultural areas within the private land portions of the survey area do not support suitable nesting or foraging habitat for this species due to the lack of suitable vegetation and the lack of loose, friable soils for foraging. Portions of Greeson Wash may represent suitable habitat for this species. Crissal Thrashers were not observed within the survey area during avian use survey or incidental to other survey efforts.

Le Conte's Thrasher (*Toxostoma lecontei lecontei*)

Species

The Le Conte's Thrasher is a CDFG Species of Special Concern and a year-round resident in Imperial County.

Habitat

Le Conte's Thrasher is an uncommon to rare, local resident in southern California deserts from southern Mono County south to the Mexican border, and in western and southern San Joaquin Valley. It occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats. Le Conte's Thrasher may also occur in Joshua tree woodlands with scattered shrubs (Grinnell and Miller 1944; McCaskie et al. 1979, 1988; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species feeds on a variety of insects and other terrestrial arthropods; occasionally on seeds, small lizards, other small vertebrates (Bent 1948; Sheppard 1970 as cited in Zeiner 1989). It primarily forages on ground by probing and digging in soil and litter with bill. The Le Conte's Thrasher is a year-round, non-migratory species that breeds from late January into early June, with a peak from mid-March to mid-April.

Occurrence

This species was observed within desert wash vegetation associated with a nearby project (RECON 2010). The active agricultural areas within the private land portions of the survey area do not support suitable nesting or foraging habitat for this species due to the lack of suitable vegetation and the lack of loose, friable soils for foraging. Portions of Greeson Wash

may represent suitable habitat for this species. LeConte's Thrashers were not observed within the survey during avian use survey or incidental to other survey efforts.

3.1.4.2.5 Golden Eagle (*Aquila chrysaetos*)

Species

This eagle occurs throughout the United States and is a rare resident in San Diego County and Imperial Counties (Unitt 2004; Zeiner 1989).

Habitat

Golden Eagles nest on cliffs of all heights and in large trees in open areas, and use rugged, open habitats with canyons and escarpments used most frequently for nesting (Zeiner 1989). Alternative nest sites are maintained, and old nests are reused. Golden Eagles build large platform nests, often 3 meters (10 feet) across and 1 meter (3 feet) high, of sticks, twigs, and greenery.

This species forages over large areas of grassland, desert, and open chaparral or sage scrub where they primarily prey upon rabbits, ground squirrels and prairie dogs. Golden Eagles forage close to and far from their nests, i.e. < 6 kilometers from the center of their territories, but have been observed to move 9 kilometers from the center of their territories in favorable habitat (McGrady et al. 2002 as cited in USFWS 2010d). These distances may be greater in xeric habitats (USFWS 2010c).

Occurrence

A Golden Eagle was incidentally observed foraging over the Mount Signal Drain and adjacent agricultural fields within the survey area during the winter avian use surveys (**Figure 7**). No previous records of this species were identified within the project vicinity (State of California 2011). No suitable nesting habitat is present within the survey area; or immediate vicinity. Therefore, golden eagles are not expected to nest within the survey area.

The nearest known Golden Eagle population is approximately 10 miles northwest of the survey area, in the Coyote Mountains (Recon 2010a, 2010b). The In-Ko-Pah and Jacumba mountains, approximately 10 miles west of the proposed project, also provide suitable habitat for this species. Due to the distance from known territories, golden eagles associated with these populations are not expected to forage within or adjacent to the survey area. El Centinela, approximately 2.25 miles southwest of the Project Area, across the U.S.-Mexico border, may support suitable nesting habitat, although data for this area were not identified during the literature search. Individuals nesting in or around Mt. Signal could potentially use the survey area and surrounding vicinity for foraging activities, though it is likely a rare occurrence.

3.1.4.3 *Riparian Habitat or Sensitive Natural Communities*

Sensitive vegetation communities are those that are considered rare or sensitive based on the level of disturbance or habitat conversion within their range. Vegetation communities associated with wetland or riparian habitats such as desert wash associated with Greeson wash and the small amount of mesquite woodland and creosote bush – white bursage scrub

present in the Project Area (**Table 2**) are considered sensitive by CDFG (State of California 2010a).

3.1.4.4 Jurisdictional Waters

A jurisdictional delineation was conducted to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. The private land survey area for potentially jurisdictional waters was comprised of the CSE Facility and the Gen-tie Line ROW across private lands. No buffer area was surveyed or analyzed for this resource. The delineation results for these surveys are still being analyzed and the final Drainage Report was unavailable at the time of this document and has not been verified by ACOE or CDFG. Therefore, the following discussion of jurisdictional waters is preliminary.

3.1.4.4.1 ACOE Jurisdictional Waters

Wetlands

No ACOE wetland areas have been identified within the private land portions of the survey area. All ACOE jurisdictional areas delineated are preliminarily considered non-wetland waters of the U.S., made up of ephemeral drainages and irrigation canals and drains.

Non-wetland Waters of the U.S.

Non-wetland waters within the private land portion of the Survey Area are primarily associated with the larger irrigation canals and drains, as well as portions of Greeson Wash.

A total of 16 features were identified as either possibly or likely federally jurisdictional, while 67 features were identified as not federally jurisdictional. The majority of the features on the Project Area are man-made features constructed wholly within uplands; these features are used for agricultural irrigation (supply and drainage). Typically the head ditches used to irrigate individual fields, as well as the tail ditches used to drain individual fields, convey water for only a few days (1-2 days out of every 10 during periods of active irrigation) at a time and would, therefore, not meet the definition of a Relatively Permanent Water (RPW) and, thus, would not be jurisdictional. The larger, Imperial Irrigation District (IID)-maintained, concrete-lined canals and lateral canals used to convey water to multiple fields convey water for most of the year and would likely be considered federally jurisdictional. Similarly, the larger IID-maintained drains that collect tail water from multiple fields convey water at all times of the year and would likely be considered federally jurisdictional.

3.1.4.4.2 CDFG Jurisdictional Waters

CDFG generally takes jurisdiction of all stream features including drains and canals. The CDFG jurisdiction extends from the top of bank to the opposite top of bank on these features or the limits of riparian vegetation if this vegetation extends beyond the top of the banks. Wetlands need to only fulfill one of the three aforementioned ACOE (hydrology, hydric soils, wetland vegetation) criteria to be considered CDFG jurisdictional wetlands.

Under Section 1600 of the CDFG Code, CDFG jurisdiction includes "...bed, channel or bank of any river, stream or lake designated by the department in which there is any time an existing fish or wildlife resource or from which these resources derive benefit..." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation or stream dependent terrestrial benefit (Cylinder 1995).

Generally speaking, most canals, head and tail ditches do not support riparian habitat. Larger drains, however, typically do support some riparian habitat and are often considered state jurisdictional. Guidance from Magdalena Rodriguez, CDFG, (pers. comm) further indicated that determinations regarding substantiality must be made for all features before CDFG would asset jurisdiction over a feature. Substantiality determinations must be made by CDFG. It was the recommendation of CDFG that most features be submitted as potentially jurisdictional in order to allow CDFG staff to make the case-by-case determinations (Rodriguez 2010). Drainage features were considered potentially jurisdictional if they exhibited bed and bank, riparian vegetation potentially providing wildlife habitat, connectivity to other features and/or evidence of regular flow. A total of 72 features were identified as potentially state jurisdictional. The only features occurring within the CSE Project Area that did not satisfy these criteria were 11 small Tail Ditches. These features were isolated within individual fields, did not support distinct bed and bank, riparian vegetation or evidence of regular flow, and are plowed under and re-created each time the field is replanted. All other features were considered potentially state jurisdictional.

3.1.4.5 Habitat Connectivity and Wildlife Corridors

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates, food, and water, allowing the dispersal of individuals away from high-density areas, and facilitating the exchange of genetic traits between populations (Beier and Loe 1992).

Both avian and terrestrial wildlife species are able to move freely throughout the survey area and are not restricted to a specific corridor or linkage.

3.2 Gen-tie Line (Federal Lands)

The following sections describe the existing conditions on lands associated with that portion of the Gen-tie Line and associated buffer areas located on lands managed by the BLM. This area is referred to as the "Gen-tie survey area".

3.2.1 Soils and Topography

The survey area is located in the Yuha Basin of the Colorado Desert between agricultural lands to the north, south, and east and native desert to the west. Alluvial fans and small washes traverse through the Gen-tie corridor at various locations, flowing northeast from Mount Signal toward the Westside Main Canal. Agricultural fields interrupt most of these drainage features before they reach the Canal (i.e., they are isolated). The uplands between the washes are relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 60 feet above mean sea level (USGS 1976).

A discussion of soils in the survey area can be found in **Section 3.1.1**.

3.2.2 General Vegetation

The following sections describe existing vegetation in the Gen-tie survey area. Please see **Section 3.1.2** for more information concerning vegetation in the private land survey area as well as information pertaining to both survey areas. Communities that are similar in composition were lumped together in the discussion following **Table 5**. Desert pavement and non-vegetated sandy wash are not discussed because there is very little habitat and they will not be impacted.

Table 5 – Vegetation Communities/Land Cover Types Within The CSE Gen-tie Line (BLM-administered Lands) Survey Area

Vegetation Community	Acres
Creosote Bush – White Bursage Scrub (CBS)	875.9
Creosote Bush – White Bursage Scrub – Disturbed (CBS-D)	72.3
Creosote Bush – White Bursage Scrub/Alkali Deposit	2.5
Desert Pavement (DP)	15.1
Encelia – White Bursage Wash Scrub (EWBS)	52.1
Ephedra – Encelia Wash Scrub (EEWS)	8.8
Mesquite – Catclaw Scrub (MCCS)	2.0
Mesquite Bosque (MB)	5.8
Non-vegetated Sandy Wash (NVSW)	2.5
Smoke Tree Wash Scrub (STWS)	77.5
White Bursage Scrub – Disturbed (WBS-D)	21.2
Developed/Disturbed Habitat (DEV/DH)	69.7
Total (BLM-administered Lands)	1,205.3

3.2.2.1 *Creosote Bush-White Bursage Scrub (CBS, CBS-D, and CBS/AD)*

Creosote bush–white bursage scrub (including the disturbed component) is the dominant vegetation community within the Gen-tie Line corridor in the survey area and accounts for 950.7 acres (approximately 79 percent of the Gen-tie survey area). This community is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. Four-wing saltbush (*Atriplex canescens*) and many fruit saltbush (*Atriplex polycarpa*) are present as sporadic minor associates. Small subshrubs present include: California croton (*Croton californicus*), plicate coldenia (*Tiquilia plicata*) and three-fork ephedra (*Ephedra trifurca*). A number of herbaceous perennial and annual species that offered a sparse herbaceous layer between shrubs were observed during the spring surveys. These species include desert sunflower (*Geraea canescens*), smooth-ray desert marigold (*Baileya pauciradiata*), desert sand verbena (*Abronia villosavar* var. *villosa*), Spanish needles (*Palafoxia arida* var. *arida*), desert dandelion (*Malacothrix glabrata*), frost mat (*Achyronychia cooperi*), desert lily (*Hesperocallis undulata*), basket evening primrose (*Oenothera deltoides*), sun cup (*Camissonia brevipes*), pincushion flower (*Chaenactis stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*).

3.2.2.2 *Developed/Disturbed Habitat (DEV/DH)*

Approximately 69.7 acres of developed/disturbed land occur within the survey area (approximately 6 percent of the Gen-tie survey area). These areas contain little to no vegetation. Disturbed areas include areas adjacent to the Imperial Valley Substation, and Highway 98. These areas are usually kept bare of vegetation by constant vehicle traffic but may support non-native weed species. Developed areas consist of lands that lack vegetation and include the Imperial Valley Substation, and other transmission infrastructure.

3.2.2.3 *Encelia-White Bursage Wash Scrub and Ephedra-Encelia Wash Scrub (EWBS and EEWS)*

Areas within the main wash along the Gen-tie corridor south of the IV substation where rayless encelia (*Encelia frutescens* ssp. *frutescens*) and white bursage co-dominate are classified as encelia-white bursage wash scrub. Desert sunflower, smooth-ray desert marigold, desert sand verbena, Spanish needles, narrow-leaved forget-me-not, Sahara mustard, and Mediterranean grass are the common understory species within this community. Approximately 60.9 acres (approximately 5 percent of the Gen-tie survey area) of encelia – white bursage scrub and ephedra – encelia wash scrub are present.

3.2.2.4 *Smoke Tree Wash Scrub (STWS)*

Several ephemeral desert washes occur along the Gen-tie corridor. Slight variations in topography result in changes in the vegetation along these washes, which results in a mosaic pattern of communities, especially along the Pinto Wash about one-quarter mile south of the Imperial Valley substation. Smoke tree (*Psoralethamnus spinosus*) is the dominant species of

the habitat along with creosote bush, indigo bush (*Psoralea schottii*), three-fork ephedra, white bursage and plicate coldenia. Understory consisted of the typical desert floor understory species observed elsewhere (e.g., desert sunflower, smooth-ray desert, desert sand verbena, Spanish needles, narrow-leaved forget-me-not, Sahara mustard, and Mediterranean grass). Thurber's pilostyles (*Pilostyles thurberi*), a CNPS List 4 species, is parasitic on some of the smoke trees in this habitat. Approximately 77.5 acres (approximately 6 percent of the Gen-tie survey area) of smoke tree wash scrub is present.

3.2.2.5 *White Bursage Scrub – Disturbed (WBS-D)*

Disturbed white bursage scrub refers to areas of desert scrub habitat that have been disturbed primarily due to OHV activity. In these areas, vegetation cover is very sparse with white bursage the sole dominant. California croton, Spanish needles and desert sand verbena are also present but in small numbers. Because of the disturbances, Sahara mustard and Mediterranean grass are also present. This community occurs along the Gen-tie corridor just north of Hwy 98 and comprises 21.2 acres (approximately 2 percent of the Gen-tie survey area).

3.2.2.6 *Mesquite-Catclaw Scrub, Mesquite Bosque and Mesquite Woodland (MCCS, MB and MW)*

A small mesquite thicket, dominated by honey mesquite (*Prosopis glandulosa* var. *torreyana*) is present along the eastern edge of the Gen-tie Line corridor in the large wash south of the IV Substation. It is an open community and thus allows for the co-occurrence of several species. Catclaw (*Acacia greggii*) and ironwood (*Olneya tesota*) are minor associates in the wash. Three-fork ephedra, four-wing saltbush, many fruit saltbush, smoke tree and creosote bush are also minor shrub components. Some of the mesquite individuals are parasitized by mistletoe (*Phorodendron californicum*). The desert floor herbaceous component throughout most of the communities in the Gen-tie survey area is present here as well (e.g. Desert sunflower, smooth-ray desert, desert sand verbena, Spanish needles, narrow-leaved forget-me-not, Sahara mustard, and Mediterranean grass). The diversity of understory species was highest in the mesquite along this wash most likely as the result of additional water associated with the wash. Approximately 7.8 acres (<1 percent of the private land survey area) of mesquite - catclaw scrub, mesquite bosque, and mesquite woodland is present.

3.2.3 General Wildlife

The wildlife species observed in the Gen-tie survey area were typical of common Colorado Desert habitats, which provide cover, foraging, and breeding habitat for a variety of wildlife species. **Attachment 3** provides a list of all wildlife species observed.

3.2.3.1 *Invertebrates*

The Gen-tie survey area contains suitable habitat for a wide variety of invertebrates. Within the agricultural fields and along portions of the Gen-tie line, harvester ants (*Pogonomyrmex* spp.), grasshoppers (*Orthoptera* spp.) and flies (*Diptera* spp.) were observed regularly.

Cabbage white (*Pieris rapae*) and other butterflies and moths (*Lepidoptera* spp.) were also regularly observed in all portions of the survey area.

3.2.3.2 *Amphibians*

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season.

No amphibians were observed within the Gen-tie line survey area.

3.2.3.3 *Reptiles*

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain plant communities and soil types, although some of these species would also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter.

Four reptile species were commonly observed throughout the Gen-tie survey area: desert iguana (*Dipsosaurus dorsalis*), common zebra-tailed lizard (*Callisaurus draconoides*), Great Basin tiger whiptail (*Aspidoscelis tigris tigris*) and sidewinder rattlesnake (*Crotalus cerastes*), Flat-tailed horned lizard individuals and sign (FTHL; *Phrynosoma mcallii*) were also observed (see **Section 3.2.4.2.3**).

3.2.3.4 *Birds*

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the homogeneity of much of the habitat within the Gen-tie survey area, bird diversity was relatively low.

During avian use surveys, species commonly observed in the Gen-tie survey area included Horned Lark (*Eremophila alpestris*), Yellow-rumped warbler (*Dendroica coronata*), Blue-gray Gnatcatcher (*Polioptila caerulea*), Black-tailed Gnatcatcher (*Polioptila melanura*), White-crowned Sparrow (*Zonotrichia leucophrys*), Rufus-crowned Sparrow (*Aimophila ruficeps*), Black Phoebe (*Sayornis nigricans*), and Turkey Vulture (*Cathartes aura*). The relative abundance of birds observed within the Gen-tie survey area was generally much lower than the abundance observed in the private land portion of the survey area.

Turkey Vultures were regularly observed roosting on transmission line structures associated with the existing transmission lines. A pair of Red-tailed Hawks (*Buteo jamaicensis*) were observed attending a stick nest approximately 0.2-miles east of the proposed Gen-tie ROW, on a Southwest Powerlink transmission line structure.

Spring avian surveys were conducted in 2011. However, the final survey report was unavailable at the time this document was written.

3.2.3.5 *Mammals*

Suitable mammal habitat is present within the Gen-tie survey area. Desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert kangaroo rat (*Dipodomys deserti deserti*), and coyote (*Canis latrans*) were detected often within the Gen-tie survey areas through direct observation as well as burrows, tracks, and scat.

3.2.4 Sensitive Biological Resources

3.2.4.1 *Special Status Plant Species*

The one-mile segment of the Gen-tie Corridor south of the Imperial Valley Substation area has the highest potential for occurrence of sensitive plant species. The most extensive native communities along the Gen-tie Corridor occur here and there is a higher diversity of native species. Additionally, more water is available in this segment because of the ephemeral wash. Utah milkweed (*Funastrum utahense*), brown turbans (*Malperia tenuis*), slender wooly-heads (*Nemacaulis denudate* var. *gracilis*), desert unicorn plant (*Proboscidea althaeifolia*), and Parish's desert-thorn (*Lycium parishii*) could potentially occur due to the presence of suitable habitat. Thurber's pilostyles (*Pilostyles thurberi*) would have a high potential for occurrence in the smoke tree wash habitat because this genus is the host for Thurber's pilostyles.

Despite having a high potential for occurrence, brown turbans, Parish's desert-thorn Thurber's pilostyles, Utah milkweed, slender wooly-heads, Watson's amaranth, and desert unicorn plant were not found during the survey. There is potential habitat for all of these species within the native communities within this corridor. Ribbed cryptantha was observed in the Gen-tie Corridor approximately one mile south of the Imperial Valley Substation. Brown turbans, Thurber's pilostyles, Utah milkweed, and slender wooly-heads, are also known to occur in very close proximity to the site. Brown turbans, Utah milkweed, and slender wooly-heads occur in desert scrub communities that are present within this corridor. **Table 5** provides a detailed analysis of all special status plant species evaluated for the Gen-tie Survey area.

3.2.4.1.1 *Federally-listed Species*

Based on the literature review, no federally listed threatened or endangered plant species were identified as having the potential to occur within the Gen-tie survey area. No federally listed threatened or endangered species were observed during focused rare plant surveys.

3.2.4.1.2 *State-listed Species*

Based on the literature review, no state-listed plant species were identified as having the potential to occur within the private lands portion of the survey area. No state-listed species were observed on-site during focused rare plant surveys.

3.2.4.1.3 *BLM Sensitive Species*

BLM sensitive species include all species currently on CNPS List 1B, as well as others that are designated by the California BLM State Director.

Wiggins croton (*Croton wigginsii*), a BLM Sensitive Species and a state rare species that historically is known only from the Algodones Dunes (35 miles northeast of the CSE Facility), has recently been reported from Plaster City, located about 12 miles to the northwest. There is some overlap in characters between Wiggins croton and California croton (*Croton californicus*), a common species. Croton individuals were observed along the Gen-tie Line corridor but exhibited characters more consistent with California croton, as described in the Jepson Desert Manual (Baldwin et al. 2002). John Messina and Andrew Trouette discussed this on November 15, 2010, and BLM directed that these individuals be called California croton (*Croton californicus*).

No other BLM Sensitive Species are expected to occur within the Gen-tie survey area.

3.2.4.1.4 *Priority Plant Species*

Priority plant species are rare, unusual, or key species that are not sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2–4. Several priority plant species were identified as having the potential to occur within the survey area. **Table 6** provides additional detail about the potential for priority plant species to occur within the survey area.

Ribbed cryptantha (*Cryptantha costata*). Ribbed cryptantha, was observed along the Gen-tie Line Corridor just south of the Imperial Valley substation. Ribbed cryptantha is a California Native Plant Society (CNPS) List 4.3 species (CNPS List 4.3 species are the least sensitive species in the ranking system – a species of limited distribution but is not very endangered in California). Based on this survey, approximately 500-1,000 individuals were estimated to occur within the broad sandy wash approximately 2,500 feet south of the Imperial Valley substation. The wash is approximately 2,000 feet wide through the survey area, and individuals were scattered throughout this wash. Most occurrences of this species supported between 10 and 20 individuals.

Watson's amaranth (*Amaranthus watsonii*). Watson's amaranth would have a low to moderate potential for occurrence. Watson's amaranth occurs in depressions that fill up with winter rains and waste places, which are generally lacking. Waste places are generally associated with agricultural activities and are probably too routinely disturbed to support this species.

Hairy stickleaf (*Mentzelia hirsutissima*). Hairy stickleaf would have only a moderate potential for occurrence in the desert scrub habitats as the site lacks habitat features (rocky areas) usually associated with this species.

Desert unicorn's flowering period coincided with the July 2010 survey. The segment of the Gen-tie Corridor that runs south out of the Imperial Valley substation was surveyed in spring of 2009, which coincided with the flowering period of brown turbans, slender wooly-heads and hairy stickleaf. The 2009 survey was not conducted during the flowering periods for the Thurber's pilostyles, desert unicorn plant, Utah vine milkweed, and Watson's amaranth, so these species would not have been detectable during this survey. However, remnant evidence of Thurber's pilostyles persists on its host for some time and was still evident on an offsite population at Plaster City during November 2010. Individuals of the genus *Psorothamnus* (both smoke tree and indigo bush) were periodically surveyed for evidence of Thurber's pilostyles during the November survey but none were found. Despite its absence during the November 2010 survey, this species would still have a low to moderate potential for occurrence due to its cryptic life form.

Potential habitat for Abram's spurge (*Chamaesyce abramsiana*) was also surveyed during the fall survey; this species was not observed. This is an ephemeral species that may not be evident every year. Despite its absence during the fall survey, this species would still have a low potential for occurrence due to its cryptic life form.

Additional spring rare plant surveys are currently being conducted. Results from the surveys are not currently available.

Table 6 – Special Status Plant Species Potentially Occurring in the Gen-tie Survey Area

Common Name/Scientific Name	Listing Status	Habitat Description and Potential for Occurrence
Chaparral sand verbena (<i>Abronia villosa</i> var. <i>aurita</i>)	CDFG: Special Plant CNPS List 1B.1	Occurs in sandy floodplains or flats in generally, inland arid areas of sage scrub and open chaparral and desert dunes (Reiser, 2001; CNPS, 2010). Annual; blooms January – August (CNPS, 2010). Not expected to occur onsite. Site generally outside of range of species; not observed during 2009 and 2010 surveys. Low potential to occur onsite. 2009 survey conducted during species traditional flowering period; 2010 survey was not. Known from Calexico and Seeley quads (CNPS, 2010).
Watson's amaranth (<i>Amaranthus watsonii</i>)	CDFG: Special Plant CNPS List 4.3	Sonoran Desert Scrub. Annual; blooms August – September. Not observed but 2009 and 2010 surveys occurred outside of traditional blooming period. Moderate potential for occurrence within desert scrub habitats along western segments of the corridors.
Harwood's milk vetch (<i>Astragalus insularis</i> var. <i>harwoodii</i>)	CDFG: Special Plant CNPS List: 2.2	Sonoran Desert scrub with gravelly, sandy washes or dunes (Reiser, 2001). Annual; blooms January-May (CNPS, 2010). Known from southwest of Plaster City between S80 and I80 (URS, 2010). Appropriate habitat on the western segment of the Gen-tie corridor and the western terminus of the Central corridor. Not observed and low potential for occurrence onsite. 2009 surveys conducted during traditional blooming period. Known from Coyote Wells quad.
Little-leaf elephant (<i>Bursera microphylla</i>)	CDFG: Special Plant CNPS List: 2.3	Sonoran Desert alluvial fan scrub (Reiser, 2001). Deciduous tree; blooms June-July (CNPS, 2010). Not observed onsite; not expected to occur. Distinctive tree species would have been observed during surveys if present. Nearest location in In-Ko-Pah Gorge quad (CNPS, 2010).
Fairy duster (<i>Calliandra eriophylla</i>)	CDFG: Special Plant CNPS List 2.3	Sonoran Desert scrub primarily on rocky hillsides and bajadas (Reiser, 2001). Deciduous shrub; blooms January – March. Not observed during surveys. Not expected to occur due to absence of appropriate habitat. 2009 surveys conducted during traditional blooming period. One CNDDB occurrence just southwest of southwestern corner of Gen-tie corridor.
Crucifixion thorn (<i>Castela emoryi</i>)	CDFG: Special Plant	Playas and gravelly areas in Sonoran Desert scrub. Deciduous shrub; blooms April – July. Not observed during surveys. Distinctive shrub species would

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Common Name/Scientific Name	Listing Status	Habitat Description and Potential for Occurrence
	CNPS List 2.3	have been observed if present. Not expected to occur onsite. Known from Yuha Basin and Coyote Wells quads (CNPS, 2010).
Peirson's pincushion (<i>Chaenactis carphoclinia peirsonii</i>) var.	CDFG: Special Plant CNPS List 1B.3	Sandy Sonoran Desert scrub. Annual; blooms March-April. Known only from the eastern Santa Rosa Mountains (CNPS, 2010). Not expected to occur onsite. Not observed during surveys. 2009 surveys conducted during traditional blooming period.
Abram's spurge (<i>Chamaesyce abramsiana</i>)	CDFG: Special Plant CNPS List 2.2	Sandy Sonoran Desert scrub. Annual; blooms September – November. Surveys not conducted during this species traditional flowering period. Low-Moderate potential to occur in native desert scrub habitats onsite. Historical collections known from Calexico, Heber and Brawley quads (CNPS, 2010). Not observed during the fall 2010 survey that was conducted during the traditional blooming period of this species.
Flat-seeded spurge (<i>Chamaesyce platysperma</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.2	Desert dunes and sandy Sonoran Desert scrub. Known in California from only four herbarium collections and one collection from Imperial County in 1987. Annual; blooms February – September. Known from Superstition Mountain and Kane Springs quads in Imperial County (CNPS, 2010). Not observed onsite. 2009 surveys conducted during traditional blooming period. Not expected to occur. Species is very rare and site is outside of known range.
Wiggins croton (<i>Croton wigginsii</i>)	BLM: Sensitive CDFG Rare CNPS List 2.2	Desert dunes and Sonoran Desert scrub. Shrub; blooms March – May. Species restricted to Algodones Dunes (CNPS, 2010). Known from near Plaster City between S80 and I80 (URS, 2010). Not observed and not expected to occur onsite. Limited habitat and site and is outside of species range. All individuals of <i>Croton</i> observed during the surveys displayed characteristics that were consistent with <i>C. californicus</i> including: seed size and shape, size of staminate sepals and flowering phenology.
Ribbed cryptantha (<i>Cryptantha costata</i>)	CDFG: Special Plant CNPS List: 4.3	Desert sand dunes and sandy desert scrub. Annual; blooms February – May (CNPS, 2010). Observed in wash along Gen-tie corridor at intersection with Central Corridor. Expected to occur on Central Corridor.
Glandular ditaxis (<i>Ditaxis claryana</i>)	CDFG: Special Plant CNPS List 2.2	Sandy Sonoran Desert scrub. Herbaceous perennial; blooms October – March. Known from Algodones Dunes (CNPS, 2010). Not observed. 2009-2010 surveys conducted during traditional blooming period. Not expected to occur onsite, site is outside of known range.
California ditaxis (<i>Ditaxis serrata</i> var. <i>californica</i>)	CDFG: Special Plant CNPS List 3.2	Sonoran Desert scrub. Herbaceous perennial blooms March-December. Nearest known occurrence Clark Lake Quad in northern Anza Borrego State Park (CNPS, 2010). Not observed during surveys. Not expected to occur. Appropriate habitat present. 2009 and 2010 surveys conducted during traditional flowering period. Site well south of reported range of this species in California.
Rock nettle (<i>Eucnide rupestris</i>)	CDFG: Special Plant CNPS List 2.2	Sonoran Desert scrub. Annual; blooms December – April. Known from Mount Signal and Coyote Wells quads (CNPS, 2010). CNDDDB occurrence from the CSE Facility but entire site is under cultivation. CNDDDB occurrence in Yuha Basin. Not observed during surveys. Low potential for occurrence. Site is well below reported lower elevational range (500m) (CNPS, 2010). Appropriate habitat present. 2009 surveys conducted during traditional flowering period. Reference population observed by S Johnston on 3-20-2009 in flower in Painted Gorge after conclusion of onsite surveys.
Utah vine milkweed (<i>Funastrum</i> (= <i>Cynanchum</i>) <i>utahense</i>)	CDFG: Special Plant CNPS List: 4.2	Sandy Sonoran Desert Scrub. Herbaceous, perennial; blooms April – June. Known from southwest of Plaster City between S80 and I80 (URS, 2010). High potential for occurrence in native desert scrub habitats onsite. Known from Yuha Basin south of S80. Would not have been observable during 2009 surveys.
Curly herissantia (<i>Herissantia crispa</i>)	CDFG: Special Plant CNPS List 2.3	Sonoran Desert scrub. Annual- herbaceous perennial; Blooms August – September. Only known from two locations in California, both in San Diego County. Not known from Imperial County (CNPS, 2010). Site is well below reported lower elevational range (700m) (CNPS, 2010). Not observed. Surveys not conducted during species traditional blooming period.

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Common Name/Scientific Name	Listing Status	Habitat Description and Potential for Occurrence
		Appropriate habitat present; however not expected to occur due to species known range.
California satintail (<i>Imperata brevifolia</i>)	CDFG: Special Plant CNPS List 2.1	Riparian scrub; desert scrub. Herbaceous perennial; blooms September – May. Not observed during surveys. 2009 and 2010 surveys conducted during traditional blooming period. CNDDB occurrence immediately east of the CSE Facility between Greeson Wash and New River. Moderate –high potential for occurrence within desert wash habitats within Project Area, e.g. Greeson Wash. Riparian scrub habitats along canals and drains would have a low potential for occurrence due to vegetation maintenance activities and schedules. Areas more frequently cleared of vegetation would not be expected to support this species.
Baja California ipomopsis (<i>Ipomopsis effusa</i>)	CDFG: Special Plant CNPS List 2.1	Washes in Sonoran desert scrub. Annual; blooms April – June. Only known location in California from Pinto Wash west of the site. Considered a waif in California, more common in Baja, California (CNPS, 2010). Appropriate habitat on the western segment of the Gen-tie Corridor and the western terminus of the Central Corridor. Not observed and not expected onsite due to known range and rarity in California. 2009 surveys conducted during traditional blooming period.
Slender-leaved ipomopsis (<i>Ipomopsis tenuifolia</i>)	CDFG: Special Plant CNPS List 2.3	Rocky/gravelly Sonoran Desert scrub. Herbaceous perennial; blooms March – May. Known from In-Ko-Pah Gorge quad. Not observed and not expected onsite. 2009 surveys conducted during traditional blooming period. No appropriate habitat onsite. Site outside of known range.
Pygmy lotus (<i>Lotus haydonii</i>)	CDFG: Special Plant CNPS List 1B.3	Rocky Sonoran Desert Scrub. Herbaceous perennial; blooms January – June. Known from In-Ko-Pah Gorge quad. Site is well below reported lower elevational range (520m) (CNPS, 2010). Not observed and not expected onsite. 2009 surveys conducted during traditional blooming period. No appropriate habitat onsite. Site outside of known range.
Mountain Springs bush lupine (<i>Lupinus excubitus</i> var. <i>medius</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.3	Sonoran Desert scrub. Shrub; blooms March – May. Known from In-Ko-Pah Gorge quad Site is well below reported lower elevational range (425m) (CNPS, 2010). Not observed and not expected onsite. 2009 surveys conducted during traditional blooming period. Marginal habitat (species range is more in desert transition habitats). Site outside of known range.
Parish's desert-thorn (<i>Lycium parishii</i>)	CDFG: Special Plant CNPS List: 2.3	Sonoran Desert scrub with sandy plains and washes; Shrub; blooms March – April. Known from In-Ko-Pah Gorge quad. Not observed; low potential for occurrence onsite. Site is well below reported lower elevational range (300m) (CNPS, 2010). 2009 surveys conducted during traditional blooming period. Appropriate habitat present in native habitats in western segments of corridors.
Brown turbans (<i>Malperia tenuis</i>)	CDFG: Special Plant CNPS List: 2.3	Sandy, Sonoran Desert scrub. Annual, blooms March – April (CNPS, 2010). Several CNDDB locations in Yuha Basin near western segment of Gen-tie Corridor. Appropriate habitat present. Not observed. 2009 surveys conducted during traditional blooming period (March-April). Appropriate habitat present in native habitats in western segments of corridors. High potential for occurrence in appropriate habitat. Though 2009 surveys negative this is a very inconspicuous species.
Hairy stickleaf (<i>Mentzelia hirsutissima</i>)	CDFG: Special Plant CNPS List: 2.3	Sonoran Desert Scrub on rocky hillsides and desert mesas (Reiser 2001; CNPS, 2010). Annual; blooms March – May. Known from Mount Signal quad (CNPS, 2010). CNDDB occurrence immediately north of the CSE Facility. Entire area of this occurrence, with exception of Greeson Wash, is under cultivation. 2009 survey conducted during traditional flowering period. Moderate potential for occurrence for the areas of native desert scrub habitats along the western segments of the gen-tie corridors. Rocky hillsides absent but desert mesas present.
Creamy blazing star (<i>Mentzelia tridentata</i>)	CDFG: Special Plant CNPS List 1B.3	Rocky, gravelly and sandy desert scrub. Annual; blooms March – May. Known from In-Ko-Pah Gorge quad (CNPS, 2010). Not observed and not expected onsite. 2009 surveys conducted during traditional blooming period. Appropriate habitat present in native habitats in western segments of corridors. Site outside of known range in California and well below lower

3. Existing Conditions

Common Name/Scientific Name	Listing Status	Habitat Description and Potential for Occurrence
		elevational limit (700 meters) reported for this species (CNPS, 2010).
Slender woolly-heads (<i>Nemacaulis denudata</i> var. <i>gracilis</i>)	CDFG: Special Plant CNPS List: 2.2	Desert dunes and Sonoran Desert scrub. Annual; blooms March – May. Known from Coyote Wells quad (CNPS, 2010). Not observed. 2009 surveys conducted during traditional blooming period. High potential for occurrence due to presence of appropriate native desert scrub habitats in western segments of corridors.
Giant Spanish-needle (<i>Palafoxia arida</i> var. <i>gigantea</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.3	Desert dunes. Annual- herbaceous perennial; blooms March – May. Known from Algodones Dunes (CNPS, 2010). Not observed and not expected to occur. 2009 surveys conducted during traditional flowering period. Appropriate habitat is absent and site well west of reported range of species.
Desert unicorn-plant (<i>Proboscidea althaeifolia</i>)	CDFG: Special Plant CNPS List 4.3	Sandy, Sonoran Desert scrub. Herbaceous perennial; blooms May – August. High potential for occurrence in western segments of corridors due to presence of appropriate habitat. Not observed but 2009 surveys not conducted during traditional blooming period. Not observed during fall 2010 rare plant survey but survey may have been too late to observe this species.
Thurber's pilostyles (<i>Pilostyles thurberi</i>)	CDFG: Special Plant CNPS List: 4.3	Herbaceous perennial parasitic on <i>Psoralea</i> sp.; blooms January. Known from Plaster City and Mount Signal (Reiser, 2001). Not observed, 2009 surveys not conducted during traditional blooming period. CNDDDB occurrence from the CSE Facility but entire site is under cultivation, no host plants present. Known from southwest of Plaster City between S80 and I80 (URS, 2010). Species still observable at the Plaster City reference site at the time of the fall 2010 rare plant survey. High potential for occurrence in smoke tree wash habitat along the Central Corridor and the Gen-tie Corridor. Not observed during the fall 2010 rare plant survey but would still have a high potential for occurrence given high number of host plants.
Desert spike-moss (<i>Selaginella eremophila</i>)	CDFG: Special Plant CNPS List: 2.2	Rocky terrain in Sonoran Desert scrub (Reiser, 2001). Herbaceous; “Blooms” May-July. Not observed, not expected to occur due to the lack of appropriate habitat. Site appears to be outside of range of species in California.
Dwarf germander (<i>Teucrium cubense</i> ssp. <i>depressum</i>)	CDFG: Special Plant CNPS List: 2.2	Sandy washes, streams and wet soils, Sonoran Desert scrub. Annual; blooms March – May (September- November). Known from Coyote Wells quad (CNPS, 2010). Not observed during 2009 survey which was conducted during traditional spring flowering period. Appropriate habitat in western segments of gen-tie corridors. Not observed during fall 2010 survey though survey conducted at a time when this species historically blooms in fall.
Orcutt's woody-aster (<i>Xylorhiza orcuttii</i>)	BLM: Sensitive CDFG: Special Plant CNPS List: 1B.2	Sonoran Desert scrub in rocky canyons and sandy washes (Reiser 2001). Herbaceous perennial; blooms March – April (CNPS, 2010). Not observed. Low potential for occurrence. 2009 surveys conducted during traditional flowering period. Appropriate habitat in western segments of gen-tie corridors; however site might be at limits of known range.

3.2.4.2 Special Status Wildlife Species

Fifteen special status wildlife species were determined to have the potential to occur within survey area and those whose potential occurrence is most pertinent to the Gen-tie survey area are discussed in detail below. These species include federally listed species, state listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

3.2.4.2.1 Federally-listed Species

Peninsular Bighorn Sheep

Species Profile

Peninsular bighorn sheep, formerly known as *O. c. cremnobates*, was federally listed endangered on March 18, 1998, and state-listed threatened on June 27, 1971 (USFWS 2001). Previously, *O. c. cremnobates* was considered to be distinct from the other subspecies of *Ovis canadensis*. However, new deoxyribonucleic acid (DNA) analysis has concluded that *O. c. cremnobates* are genetically indistinct from Nelson's bighorn sheep (*Ovis canadensis nelsoni*); *O. c. cremnobates* was taxonomically reclassified as *O. c. nelsoni* and designed as a "distinct vertebrate population segment" (DPS) (USFWS 2009). The Peninsular DPS occurs within the Peninsular Ranges and was listed as federally endangered (USFWS 2001). Critical habitat was designated in 2009 and includes portions of western Imperial County, approximately 14 miles west of the action area. A recovery plan was also prepared for the bighorn sheep in the Peninsular Ranges in 2000 (USFWS 2000).

Peninsular bighorn sheep prefer steep, open slopes, canyons, and washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical, because bighorn primarily rely on their sense of sight to detect predators (USFWS 2001). Most Peninsular bighorn sheep live between 300 and 4,000 feet in elevation, where average annual precipitation is less than four inches and daily high temperatures average 104 degrees Fahrenheit (°F) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during hotter months. In the Peninsular Ranges, bighorn sheep browse on a wide variety of plants, including shrubs, forbs, cacti, and grasses (USFWS 2001). Although steep escape route terrain is closely associated with bighorn sheep, low rolling and flat terrain including foothills and washes provide an alternative source of high quality browse forage during times when resources become limited (USFWS 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans (sloping deposits of gravel, sand, clay, and other sediments that spread fanlike at the base of canyons and washes) are also used for breeding, feeding, and movement (USFWS 2001).

Peninsular bighorn sheep are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist 1971 in USFWS 2000). Although they have been documented to move great distances from escape terrain on rare occasions (Schwartz et al. 1986 in USFWS 2000), it is common to observe animals moving a short distance from escape terrain in search of forage or water sources, or moving between neighboring mountains. Researchers have documented animals ranging at a variety of distances from mountainous terrain (greater than 20 percent slope), from 0.5 to 1.6 miles, but Peninsular bighorn sheep were most frequently found within 0.5 miles of the mountainous terrain (USFWS 2000).

Historically, bighorn sheep have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton 1930 in USFWS 2001). The distribution of Peninsular bighorn sheep has become more fragmented in the recent past,

possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS 2001). Bighorn sheep exhibit a naturally patchy distribution as a result of natural breaks in mountainous habitat (Schwartz et al. 1986 and Bleich et al. 1990a and 1996 in USFWS 2001). Currently, the Peninsular bighorn is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS 2001).

Critical Habitat

Critical habitat for Peninsular bighorn sheep was designated in 2009 and includes portions of western Imperial County. Closed DCH is approximately 14 miles west of the action area in the Jacumba Mountains.

Occurrence

The nearest recorded location for this species was approximately 18 miles west of the survey area, in the rocky hills southwest of Ocotillo, California (USFWS 2010b). The action area does not contain the steep, rocky terrain that typically provides cover and habitat for the Peninsular bighorn sheep. The Coyote, In-Ko-Pah, and Jacumba mountains that provide suitable year-round habitat for this species are located 13 to 16 miles from the survey area. The project is situated in the large agricultural complex that surrounds El Centro on the eastern edge of the Yuha Desert, and does not function as a movement corridor for Peninsular bighorn sheep between the Peninsular mountain ranges in western Imperial Valley. In addition, the site is too far from the Peninsular ranges and the corridors between the ranges to serve as a source for foraging or water (USFWS 2000). The small amount of desert wash vegetation within the survey area that could be suitable foraging habitat for this species is located near the Imperial Valley Substation and would require the Peninsular bighorn sheep to move over 12 miles from the Jacumba Mountains. The location of the survey area within predominantly agricultural lands also reduces the likelihood of use by Peninsular bighorn sheep, which are sensitive to human activity and disturbance (USFWS 2010d).

Peninsular bighorn sheep were not detected in the survey area during numerous biological surveys conducted during all seasons from 2009 to 2011. Given the distance from suitable rocky terrain; agricultural lands within the survey area; distance of suitable foraging habitat from the Jacumba Mountains; lack of detection within the survey area; and the unlikelihood of the survey area to function as a corridor for this species, Peninsular bighorn sheep are not expected to occur within the survey area or the vicinity.

3.2.4.2.2 *State-listed Species*

State listed species with the potential to occur within the Gen-tie survey area include : greater Sandhill Crane (*Grus canadensis tabida*), barefoot-banded gecko (*Coleonyx switaki*), Yuma clapper rail and Peninsular bighorn sheep. Sandhill crane and barefoot-banded gecko are discussed in **Section 3.1.4.2.2**. Yuma clapper rail is discussed in **Section 3.1.4.2.1**. Peninsular bighorn sheep is discussed in **Section 3.2.4.2.1**.

3.2.4.2.3 *BLM Sensitive Species*

Colorado Desert Fringe-toed Lizard (*Uma notata notata*)

Species

The Colorado Desert fringe-toed lizard is a CDFG Species of Special Concern and a BLM sensitive species. This species is primarily insectivorous, but will also feed on plant material. This species diet consists of ants, beetles, antlion larvae, hemipterans, grasshoppers, and caterpillars. Plant foods include buds, flowers, leaves, and seeds. Conspecifics and other lizards are also eaten occasionally. Sight is most frequently used to find food on the surface of sand. Buried fringe-toed lizards also use hearing to detect prey on the sand surface, or to find buried prey when above ground (Zeiner et al. 1988).

Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand ("sand swimming") within 5 to 6 centimeters (2 to 2.4 inches) of the surface. They are usually buried on the lee sides of dunes and hummocks to prevent excavation by wind. Rodent burrows and the bases of shrubs are also used for cover and thermoregulation. Lizards usually hibernate in sand 30 centimeters (12 inches) deep, but juveniles and subadults may be found closer to the surface (Zeiner et al. 1988).

Habitat

The Colorado Desert fringe-toed lizard is found in the Colorado desert, south of the Salton Sea in Imperial and San Diego Counties. Its elevational range extends from sea level up to 180 meters (590 feet; Jennings and Hayes 1994). The Colorado Desert fringe-toed lizard is restricted to fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub (Zeiner et al. 1988).

Occurrence

This species has a moderate potential to occur within Creosote Bush – White Bursage Scrub (CBS and CBS-D) habitats present the survey area, but none were observed during surveys. This species is known to occur approximately two miles west of the survey area (State of California 2010). Some of the area within this habitat represents potentially suitable habitat although loose sandy areas are limited in depth and extent and are not highly suitable.

Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

Species

In California, the flat-tailed horned lizard (FTHL) was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the California Fish and Game Commission (CFG) to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the FTHL as a threatened species (USFWS 2010a). In 2006, the USFWS withdrew its proposal (USFWS 2006). On March 2, 2010, USFWS re-instated the 1993 proposed listing of the FTHL as federally threatened (USFWS 2010e). The Ninth Circuit Court of Appeals has ordered the USFWS to make a final listing determination by November 3, 2010. On March 15, 2011, the

USFWS again withdrew its proposal to list the FTHL under the Endangered Species Act (USFWS 2011).

FTHL has the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark dorsal stripe, lack of external openings, broad flat tail, and comparatively long spines on the head (Funk 1981 as cited in Interagency Coordinating Committee [ICC] 2003). The FTHL has two rows of fringed scales on each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher 1992 as cited in ICC 2003).

FTHLs escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

Habitat

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980 as cited in ICC 2003).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub vegetation communities. However, this species may also be found in desert scrub, desert wash, succulent shrub, alkali scrub, and sparsely vegetated sandy flats. It is typically found in dry, hot areas of low elevation (less than 800 feet).

Occurrence

The small amount of Creosote Bush – White Bursage Scrub (CBS and CBS-D) associated with the private land portion of the survey area has the potential to support FTHL.

Focused surveys for FTHL were performed within the Gen-tie survey area. A total of 14 observations of potential FTHL sign were recorded during the surveys: 12 FTHL scats (1-5 scats per record) and 2 potential FTHL tracks. The tracks were not definitively FTHL tracks because they were not fresh and the margins were blurred. No FTHL individuals were observed during the FTHL surveys.

Habitats in which observations were located were variable. FTHL sign was not limited to the sandiest portions of the survey area, and FTHL sign was found in disturbed areas in several instances (e.g. on an existing road), often times in areas with compacted and/or gravelly soils. Although no individuals were observed during the FTHL survey, one FTHL individual was

observed on July 5, 2010 on the margin of the existing transmission line access road approximately 0.5 miles south of the southern-most ZOI transect.

Flat-tailed horned lizard density in the survey area appeared to be low. No individuals and only 14 observations of FTHL sign were recorded from 48 miles of transects. FTHL sign in the survey area were not limited to the most highly suitable habitats, and in several instances, sign was observed in disturbed habitats. Thus, the entire survey area can be considered occupied, although at low densities compared to areas with greater expanses of higher-quality habitat in other portions of the MA.

3.2.4.2.4 *California Species of Special Concern and Fully Protected Species*

Four species that are classified as CDFG Species of Special Concern were observed within the survey area or were observed during surveys for nearby projects (RECON 2010a, 2010b); Loggerhead Shrike, Crissal Thrasher (*Toxostoma crissale*), Least Bittern (*Ixobrychus exilis*) and LeConte's thrasher (*T. lecontei lecontei*). Golden eagle (*Aquila chrysaetos*), a CDFG Fully Protected Species, and protected under the Bald and Golden Eagle Protection Action, MBTA, and Fish & Game Code sections 3503, 3503.5, and 3513, was also observed within the Project Area (Heritage 2011a). These species are discussed in **Section 3.1.4.2.4**.

3.2.4.3 *Riparian Habitat or Sensitive Natural Communities*

Sensitive vegetation communities are those that are considered rare or sensitive based on the level of disturbance or habitat conversion within their range. Vegetation communities associated with wetland or riparian habitats such as the several desert washes that cross the Gen-tie line corridor and the small amount of mesquite woodland present in the survey area are considered sensitive by CDFG (State of California 2010).

3.2.4.4 *Jurisdictional Waters*

A jurisdictional delineation was conducted to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. The Gen-tie survey area for potentially jurisdictional waters was comprised of only the Gen-tie ROW (all alternatives). ~~No buffer area was surveyed or analyzed for this resource.~~ The delineation results for these surveys are still being analyzed and the final Drainage Report was unavailable at the time of this document and has not been verified by ACOE or CDFG. Therefore, the following discussion of jurisdictional waters is preliminary in nature.

3.2.4.4.1 *ACOE Jurisdictional Waters*

No ACOE wetland areas or and five non-wetland waters of the U.S. have been identified within the Gen-tie survey area. All waters delineated, except one, are isolated ephemeral washes ~~and, therefore, excluded from ACOE jurisdiction. The wash that crosses the Gen-tie Line south of Highway 98 may be a jurisdictional WUS. Proposed impacts to these features is unknown at this time.~~

Comment [s6]: Please provide an update of the final jurisdictional delineation and what process will be used by the Corps (Preliminary JD assuming jurisdiction, formal JD, an approved JD ?) How many acres of impacts will be in jurisdictional areas (ACOE). This will be needed for a complete final analysis.

Comment [sy7]: Sharon, CSE is currently in the process of finalizing their approach with the Corps and is still unsure of the process they will use at this point.

Comment [s8]: In a sentence or two, discuss how the Applicant is planning the least environmentally damaging practicable alternative (LEDPA).

Comment [sy9]: Sharon, they will be using a NWP, not an individual permit so the LEDPA determination will not apply in this case.

3.2.4.4.2 *CDFG Jurisdictional Waters*

CDFG generally takes jurisdiction of all stream features including drains and canals. The CDFG jurisdiction extends from the top of bank to the opposite top of bank on these features or the limits of riparian vegetation if this vegetation extends beyond the top of the banks. Wetlands need to only fulfill one of the three aforementioned ACOE (hydrology, hydric soils, wetland vegetation) criteria to be considered CDFG jurisdictional wetlands.

Under Section 1600 of the CDFG Code, CDFG jurisdiction includes "...bed, channel or bank of any river, stream or lake designated by the department in which there is any time an existing fish or wildlife resource or from which these resources derive benefit..." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation or stream dependent terrestrial benefit (Cylinder 1995).

A total of six features were identified as potentially state jurisdictional within the Gen-tie survey area. There were no non-jurisdictional features identified. The six features identified were all isolated ephemeral washes and associated xeroriparian habitats.

3.2.4.5 *Habitat Connectivity and Wildlife Corridors*

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates, food, and water, allowing the dispersal of individuals away from high-density areas, and facilitating the exchange of genetic traits between populations (Beier and Loe 1992).

Both avian and terrestrial wildlife species are able to move freely throughout the survey area and are not restricted to a specific corridor or linkage.

3.2.4.6 *California Desert Conservation Area*

The proposed Gen-tie line survey area lies within the Yuha Basin Area of Critical Environmental Concern (ACEC) of the California Desert Conservation Act (CDCA), and is within "Utility Corridor N", as designated by the CDCA.

4.0 ENVIRONMENTAL CONSEQUENCES

The proposed project would result in approximately ~~1,886~~1,924 acres of permanent impacts and approximately ~~22~~17 acres of temporary impacts. **Table 7** summarized the expected impacts to vegetation communities from the various project components.

The following impact sections describe the anticipated impacts on lands associated with the CSE Facility, portions of the Gen-tie Line and associated buffer areas that are on private lands and lands associated with the Gen-tie Line on federal lands separately.

4. Environmental Consequences

Table 7 – Proposed Impacts to Vegetation Communities by Alternative

Project Component	Solar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
Permanent Impacts											
Solar Field											
Agriculture (AG)	1908.04										
Arrow Weed Scrub (AS)	0.09										
Arrow Weed Scrub - Disturbed (AS-D)	0.61										
Arrow Weed Scrub / Tamarisk Scrub (AS/TS)	0.06										
Arrow Weed Scrub / Tamarisk Scrub - Disturbed (AS/TS-S)	0.07										
Big Salt Bush Scrub - Disturbed (BSS-D)	3.81										
Developed / Disturbed (Dev)	3.65										
Palo Verde Woodland (possibly planted) (PVW)	0.38										
Tamarisk Scrub - Disturbed (TS-D)	3.38										
Solar Field Total	1920.10		1920.10								
Transmission Line											
<i>Access Roads</i>											
Creosote Bush-White Bursage Scrub (CBS)		3.44		3.42	4.17	4.14	3.40	4.12	4.10	2.33	2.22
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.12		0.12	0.33	0.33	0.25	0.37	0.37	0.15	0
Developed / Disturbed (Dev)		0.13		0.13	0.11	0.11	0.02	0.03	0.03	0.02	0.00
Encelia-White Bursage Wash Scrub (EWBS)		0.06		0.06	0.13	0.12	0.06	0.13	0.12	0	0
Non-Vegetated Sandy Wash (NVSW)		0.02		0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02
Smoke Tree Wash Scrub (STWS)		0.07		0.07	0.18	0.17	0.07	0.18	0.17	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.06		0.06	0.13	0.13	0.06	0.13	0.13	0	0.28
Access Road Total		3.91	3.91	3.89	5.07	5.04	3.89	4.98	4.96	2.52	2.52

4. Environmental Consequences

Project Component	Solar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
<i>Structure Footings</i>											
Agriculture (AG)		0.01		0.04	0.01	0.04	0.04	0.01	0.04	0.04	0.04
Creosote Bush-White Bursage Scrub (CBS)		0.03		0.09	0.02	0.09	0.09	0.02	0.09	0.05	0.03
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.003		0.003	0.004	0.004	0.004	0.004	0.004	0.02	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.002
Developed / Disturbed (Dev)		0.001		0.001	0	0	0	0	0	0	0
Encelia-White Bursage Wash Scrub (EWBS)		0.001		0.005	0.001	0.005	0.005	0.001	0.005	0	0
Smoke Tree Wash Scrub (STWS)		0.001		0.005	0.001	0.005	0.005	0.001	0.005	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.001		0.003	0.003	0.003	0.003	0.003	0.003	0	0.03
Footings Total		0.04	0.04	0.14	0.04	0.14	0.14	0.04	0.14	0.10	0.10
Transmission Line Total		3.96	3.96	4.03	5.11	5.18	4.03	5.03	5.10	2.62	2.63
Permanent Impacts Total			1924.06								
Temporary Impacts											
Transmission Line											
<i>Pulling & Tensioning Sites</i>											
Creosote Bush-White Bursage Scrub (CBS)		5.34		5.34	5.61	5.61	5.64	5.91	5.91	3.64	2.83
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0		0	0	0	0.85	0.85	0.85	0	0
Creosote Bush White Bursage Scrub/Alkali Dep (CBS/AD)		0		0	0	0	0	0	0	0.38	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.74
White Bursage Scrub - Disturbed (WBS-D)		0		0	0	0	0	0	0	0	2.81
Wire Splicing Site											
Creosote Bush-White Bursage Scrub (CBS)		1.15		1.15	1.15	1.15	1.15	1.15	1.15	0	0
<i>Access Road</i>											

4. Environmental Consequences

Project Component	Solar Field Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
Creosote Bush-White Bursage Scrub (CBS)		0.28		0.28	0.32	0.32	0.28	0.32	0.32	0	0.13
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.04		0.04	0.12	0.12	0.04	0.12	0.12	0	0.02
<i>Guard Structures</i>											
Agriculture (AG)		0.07		0.07	0.06	0.06	0.07	0.06	0.06	0.07	0.07
Creosote Bush-White Bursage Scrub (CBS)		0.28		0.28	0.30	0.30	0.28	0.30	0.30	0.04	0.04
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.22		0.22	0.19	0.19	0.22	0.19	0.19	0	0.30
Developed / Disturbed (Dev)		0.16		0.16	0.17	0.17	0.16	0.17	0.17	0.13	0.17
<i>Tower Construction Pads</i>											
Creosote Bush-White Bursage Scrub (CBS)		7.76		7.71	7.91	7.86	7.72	7.91	7.87	3.16	2.60
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)		0.81		0.81	0.86	0.86	0.92	0.86	0.86	1.06	0
Creosote Bush White Bursage Scrub/Alkali Dep (CBS/AD)		0		0	0	0	0	0	0	0.04	0
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.26
Developed / Disturbed (Dev)		0.19		0.19	0.08	0.08	0.09	0.08	0.08	0	0.04
Encelia-White Bursage Wash Scrub (EWBS)		0.40		0.40	0.40	0.40	0.40	0.40	0.40	0	0
Mesquite Bosque (MB)		0.09		0.09	0.00	0.00	0.09	0.00	0.00	0	0
Smoke Tree Wash Scrub (STWS)		0.41		0.40	0.41	0.41	0.40	0.41	0.41	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.39		0.39	0.38	0.38	0.39	0.38	0.38	0	1.95
Temporary Impacts Total		17.59	17.59	17.54	17.98	17.93	18.69	19.13	19.08	8.51	11.97
TOTAL PROJECT IMPACTS			1941.65								

4.1 CSE Facility and Gen-tie Line (Private Lands)

The CSE Facility would result in approximately 1,860.78 acres of permanent disturbance and no areas of temporary disturbance **Table 5**.

4.1.1 Impact to Special Status Species

For purposes of this report, the proposed project would have a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFG or USFWS.

4.1.1.1 *Special Status and Priority Plant Species*

No special status or priority plant species are expected to occur within the private land survey area. Therefore, no impacts to special status or priority plant species are expected to occur as a result of project implementation.

4.1.1.2 *Special Status Wildlife Species*

4.1.1.2.1 *Federally Listed Species*

Southwestern Willow Flycatcher

Construction of the Proposed Action is not likely to directly affect SWFL individuals, because there is no nesting habitat in the action area and no habitat used during migration habitat will be ~~disturbed~~removed. The Avian and Bat Protection Plan (ABPP) will provide guidance designed to minimize disturbance and avoid project related impacts to migration and other important avian habitats.

Light and noise from heavy equipment during construction may result in short-term avoidance of small areas of foraging habitat that are located near construction activities. These would be short-term impacts given the brief amount of time (likely two weeks or less) this species may forage in the vicinity during migration. Work in the immediate vicinity of potentially suitable SWFL habitat will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the solar field or at the specific tower location being constructed in order to minimize effects. Noise from construction of the solar field may exceed 60 dB(A) for a distance of up to 1,280 feet outside of the solar field perimeter. Minimization and avoidance measures to reduce potential noise effects to avian species will be implemented following the ABPP, including timing construction to minimize effects to avian species. Given the brief amount of time SWFL may be foraging within the action area during migration, and the implementation of impact avoidance and minimization measures, any effects to SWFL from noise and lighting would be minimal and short-term.

Comment [s10]: Adjust language to be consistent with the stipulations (buffers etc.) that will be finalized following FWS concurrence with the Section 7 determination.

Comment [sy11]: Since Sec. 7 is not complete yet, I have not made a change here.

The O&M activities of the CSE Project are unlikely to have more than a discountable effect on SWFL that may be foraging within the migration habitats (**Attachment 1: Figure 4**) adjacent to the solar field during migration. Noise and lighting during operations will be minimal and directed toward the interior of the solar field where the operations facilities are located and would be similar in nature to noise associated with current agricultural activities. Therefore, O&M activities are not expected to provide a significant source of disturbance to avian species, including SWFL, outside of the solar field.

Suitable migration habitat in the private land portion of the survey area occurs in Greeson Wash, along Mount Signal Drain, and along the Westside Main Canal and Wormwood Canal. The project will not directly disturb acreage inside these habitats. No project features will be built within, over or under Greeson Wash or its riparian habitat. The solar panels will be installed in areas actively farmed and fencing will be installed near existing field edges to prevent equipment from entering Greeson Wash or its riparian habitat during construction and operations. Similarly, the solar Project Area would be fenced and not encroach on the Westside Main Canal, the Mount Signal Drain, or riparian habitat associated with those features. However, the Gen-tie Line, a 230 kV overhead electric line, would span the Westside Main Canal and Mount Signal Drain.

Potential impacts to the SWFL would appear to be limited to construction of the Gen-tie Line over the Westside Main Canal, Wormwood Canal, and Mount Signal Drain (if during the migration period), which may present a collision risk, and temporal displacement of migrant willow flycatchers if nearby construction activities temporarily deter foraging. Bird flight diverters will be installed on the Gen-tie Line along the segments that cross the Westside Main Canal and Mount Signal Drain.

The CSE Facility will include earthen stormwater retention and detention basins, with surface areas of approximately 1.0 and 0.4 acres, to manage stormwater flows, respectively. Drainage channels will drain run-off flows from the solar fields to these basins, where water will be allowed to percolate through the soil. The Applicant may also elect to have a permanent on-site water treatment system to treat water for PV panel washing. Three evaporation ponds with a total surface area of approximately 1.25 acres would be constructed. The detention basins will be sized to meet county and RWQCB standards. Areas of the facility that may release contaminants, such as the O&M building and delivery areas, will be provided with storm water containment designed to accommodate runoff in accordance with County guidelines. No indirect effects to SWFL foraging habitat along the Westside Main Canal, Mount Signal Drain, or Greeson Wash are expected to occur resulting from run-off.

Roads exist adjacent to the Westside Main Canal, Mount Signal Drain, and Greeson Wash, therefore, no additional grading of solar field access roads adjacent to potentially suitable migration habitat (riparian or hydrophytic vegetation) is anticipated, resulting in no indirect impacts to these habitats from sedimentation.

Comment [s12]: Address this when stipulations are finalized following the FWS consultation process. For information purposes, The Raven plan (IV Solar 2) that have been approved have required screening over evaporation ponds.

Comment [sy13]: Since Sec 7 is not complete, this will have to be addressed in the NEPA/CEQA process

Yuma Clapper Rail

Construction of the CSE Project is not likely to have more than a discountable effect. YCR individuals, as potential habitat is very small and isolated and this species is not expected to nest within the survey area. The ABPP will provide guidance on minimizing disturbance to all avian species during construction, and no potential foraging or wintering habitat will be removed during construction or grading.

Given the nearest known occurrence is 2.7 miles north of the survey area and poor quality of YCR habitat, there is a low potential for YCR to forage in the cattail marsh vegetation in Mount Signal Drain or winter in the tamarisk thickets adjacent to the Westside Main Canal, Mount Signal Drain, and Greeson Wash. Light and noise from heavy equipment during construction has a low probability of temporarily impacting YCR given the low potential for this species to forage or winter adjacent to the solar field. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the solar field in order to minimize effects. Noise from construction of the solar field may exceed 60 dB(A) for a distance of up to 1,280 feet outside of the solar field perimeter. Minimization and avoidance measures to reduce potential noise effects to avian species, including YCR, will be implemented following the ABPP, including timing construction to minimize effects to avian species. Given the low likelihood that YCR forages or winters in these small, isolated habitat patches within the action area and the implementation of impact avoidance and minimization measures, any effects to YCR from noise and lighting would be minimal and short-term.

The O&M activities of the Proposed Action will not affect YCR in the unlikely event that this species forages within the cattail marsh adjacent to the proposed solar fields. Any noise and lighting during operations will be minimal, and the level of human disturbance is not expected to increase significantly above the agricultural practices that are currently taking place and will continue to take place. Therefore, O&M activities are not expected to affect YCR.

The low quality potential foraging and wintering habitat patches will not be removed during construction of the project, and no effects to YCR due to potential habitat loss will occur.

The CSE Facility will include earthen stormwater retention and detention basins, with surface areas of approximately 1.0 and 0.4 acres, to manage stormwater flows, respectively. Drainage channels will drain run-off flows from the solar fields to these basins, where water will be allowed to percolate through the soil. The Applicant may also elect to have a permanent on-site water treatment system to treat water for PV panel washing. Three evaporation ponds with a total surface area of approximately 1.25 acres would be constructed. The detention basins will be sized to meet county and RWQCB standards. Areas of the facility that may release contaminants, such as the O&M building and delivery areas, will be provided with storm water containment designed to accommodate runoff in accordance with County guidelines. No indirect effects to YCR foraging habitat or wintering habitat along the Westside Main Canal, Mount Signal Drain, or Greeson Wash are expected to occur resulting from run-off.

Unpaved roads exist adjacent to the Westside Main Canal, Mount Signal Drain, and Greeson Wash, therefore, no additional grading beyond standard maintenance of solar field access roads adjacent to potential foraging or winter habitat is anticipated. Indirect impacts to these habitats resulting from sedimentation is not expected to occur. All road crossings of canals and drains (if necessary) will be designed to provide for safe crossing of features as well as to maintain downstream flows. The design and construction of these crossings will be the responsibility of IID. Because downstream flow are expected to be maintained at current levels, effects to downstream SWFL habitat are not anticipated.

Mountain Plover

The risk of death or injury to Mountain Plover resulting from the CSE project is unlikely for the following reasons:

- This species does not nest within the survey area or in the Imperial Valley; therefore, there is no risk of destroying nests or eggs, harming chicks, or discouraging parents from returning to the nest.
- The species is naturally evasive and shy, and will readily move out of harms way to avoid construction activities. They would likely find suitable fields nearby for foraging.
- Foraging habitat would be removed permanently on the CSE Facility; therefore, Mountain Plovers would not attempt to forage on the site and there would be no risk of collision with solar panels and other components.

The Mountain Plover is protected under the MBTA. As such, it is unlawful to kill this species. Therefore, the Applicant must avoid killing Mountain Plover and employ avoidance measures necessary to avoid killing or injuring any Mountain Plover. The ABPP will include measures designed to minimize disturbance to all avian species during construction, including measures to prevent take of MBTA-protected birds during construction and operation of the Project.

Light and noise from heavy equipment during construction is expected to be of short duration and should not adversely modify the behavioral patterns of foraging Mountain Plover given the vast amount of foraging habitat in the immediate vicinity of the survey area. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the solar field in order to minimize effects to Mountain Plover that may be roosting in adjacent fields. However, Mountain Plover is a diurnal species and is not expected to be active at night. Noise from construction of the solar field may exceed 60 dB(A) for a distance of up to 1,280 feet outside of the solar field perimeter. Minimization and avoidance measures to reduce potential noise effects to avian species, including Mountain Plover, will be implemented following the ABPP, including timing construction to minimize effects to avian species. Because the Mountain Plover is relatively tolerant of disturbance on its wintering grounds, the brief periods when plovers may forage within any given field in the vicinity of the action area, and the implementation of impact avoidance and minimization measures, disturbance to Mountain Plover from noise and lighting would be unlikely.

The O&M activities are unlikely to affect Mountain Plovers that may be foraging adjacent to the CSE Facility during the winter. Noise and lighting during operations will be minimal and directed toward the interior of the solar field, where the operations facilities are located. General O&M activities that may be conducted within the CSE solar field include equipment inspection and/or repairs, solar panel washing, weed abatement activities, and security guard duties involving the use of motor vehicles. Panel washing may also require a water truck access. These O&M activities are anticipated to be at the same level of intensity as the current agricultural operations and are not expected to affect the overall behavioral patterns of Mountain Plovers within the survey area. Mountain Plover is only active during daylight hours, and no collisions with the proposed Gen-tie Line, solar panels, or other facility structures are anticipated, as they will be visible, and therefore avoidable, if Mountain Plovers are actively moving in and around the CSE Project. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the ABPP for implementation. Therefore, O&M activities would have an insignificant or discountable effect on Mountain Plover foraging within or adjacent to the survey area.

Approximately 1,860.8 acres of potential foraging habitat for Mountain Plover would be permanently removed. Conservatively assuming that entire acreage is suitable foraging habitat at any given time, this loss of foraging habitat would account for approximately 0.9 percent of the estimated foraging habitat (using the five-year average of 214,962 acres) available in the Imperial Valley. This does not take into account the likely significant acreage of suitable foraging habitat in Mexico, just across the border. The permanent loss of 0.9 percent of suitable foraging habitat in the Imperial Valley is a discountable loss of habitat in the Imperial Valley.

Large avian predators such as ravens (genus *Corvus*), Loggerhead Shrikes (*Lanius ludovicianus*), and Prairie Falcon (*Falco mexicanus*) may be drawn to the CSE Facility due to the increase in food sources such as garbage cans and nesting/perching areas such as the perimeter fence. This potential increase in avian predators may indirectly affect Mountain Plover within and adjacent to the solar field, but this effect would be minimized by implementation of a Raven Control Plan.

No indirect effects to Mountain Plover due to herbicide use are anticipated. The timing and formula of any herbicide used for control of weeds will be in accordance with the proposed CSE Project Weed Management Plan, which conforms to resource agency standards to minimize impacts to sensitive biological resources.

4.1.1.2.2 State Listed Species

As discussed in **Section 3.1.4.2.2**, the barefoot-banded gecko is not expected to occur in the survey area and is not discussed further in this document.

Greater Sandhill Crane

Greater Sandhill Cranes may forage during the winter in the active agricultural habitats present within the survey area. Approximately 1,859.75 acres of agricultural land would be removed under the Proposed Action. Given the large amount of potentially suitable foraging habitat in the immediate vicinity of the Project Area and the Imperial Valley, it is unlikely that the loss of this

potentially suitable foraging habitat would significantly impact wintering Greater Sandhill Cranes.

Light and noise from heavy equipment during construction is not expected to adversely modify the behavioral patterns of foraging Sandhill Cranes given the vast amount of foraging habitat in the immediate vicinity of the survey area. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the solar field in order to minimize effects to Sandhill Cranes that may be roosting in adjacent fields. However, the Sandhill Crane is a diurnal species and is not expected to be active at night. Noise from construction of the solar field may exceed 60 dB(A) for a distance of up to 1,280 feet outside of the solar field perimeter. Minimization and avoidance measures to reduce potential noise effects to avian species, including Sandhill Crane, will be implemented following the ABPP, including timing construction to minimize effects to avian species. Because the Sandhill Crane is relatively tolerant of disturbance on its wintering grounds, the brief periods when they may forage within any given field in the vicinity of the action area, and the implementation of impact avoidance and minimization measures, disturbance to Sandhill Cranes from noise and lighting would be unlikely.

The O&M activities are unlikely to affect Sandhill Cranes that may be foraging adjacent to the CSE Facility during the winter. Noise and lighting during operations will be minimal and directed toward the interior of the solar field, where the operations facilities are located. General O&M activities that may be conducted within the CSE solar field include equipment inspection and/or repairs, solar panel washing, weed abatement activities, and security guard duties involving the use of motor vehicles. Panel washing may also require a water truck access. These O&M activities are anticipated to be at the same level of intensity as the current agricultural operations and are not expected to affect the overall behavioral patterns of Sandhill Cranes within the survey area.

Sandhill Cranes are only active during daylight hours, and no collisions with the proposed Gentle Line, solar panels, or other facility structures are anticipated, as they will be visible, and therefore avoidable, if Sandhill Cranes are actively moving in and around the CSE Project. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the ABPP for implementation. Therefore, O&M activities would have an insignificant or discountable effect on Greater Sandhill Cranes foraging within or adjacent to the survey area.

4.1.1.2.3 BLM Sensitive Species

Burrowing Owl

The 1995 California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995) defines impact to Burrowing Owl as:

- Disturbance within 50 meters (approx. 160 feet.) which may result in harassment of owls at occupied burrows;

Comment [s14]: You might include measures such as worker education (wildlife feeding) or speed limits, etc.

Comment [sy15]: Since some agency consultation/coordination is still ongoing, this may be best addressed in the NEPA/CEQA process

4. Environmental Consequences

- Destruction of natural and artificial burrows (culverts, concrete slabs, and debris piles that provide shelter to Burrowing Owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 meters) of an occupied burrow(s).

As discussed in **Section 3.1.4.2.3**, several occupied Burrowing Owl burrows were observed within survey area. While the majority of these burrows would not be directly impacted as the result of project implementation, adjacent agricultural fields, which represent suitable foraging habitat for these burrows will be graded during construction activities.

Impacts to any Burrowing Owl individuals and/or active Burrowing Owl burrows would be considered potentially significant, and mitigation in the form of avoidance and impact minimization would be required to reduce the impact to a level of less than significant. In accordance with the CDFG Staff Report on Burrowing Owl Mitigation (1995), impacts to foraging habitat within 100 meters (approximately 300 feet) of each active burrow would be considered significant and would require mitigation for the foraging habitat.

After construction is complete, Burrowing Owls may occur along the remaining earthen lined canals and drains in and around the Project Area.

All permanent lighting within the solar field will be low profile fixtures that point inward toward the solar field with directional hoods or shades to reduce light from shining into the adjacent habitat. In addition, any lighting not required daily for security purposes will have motion sensor or temporary use capabilities. No significant impact due to lighting is expected to occur to this species, and no mitigation is required.

No equipment or components of the solar field or transmission lines are expected to produce noise that would exceed ambient noise in the vicinity. No significant impact due to noise is expected to occur to this species, and no mitigation is required.

Final mitigation measures and design criteria will be decided in consultation with the pertinent state and federal agencies and may differ slightly from those described herein. Please refer to these stipulations

~~During the BUOW nesting season (February 1 to August 31), the qualified monitor shall establish and mark a 250-foot non-disturbance buffer circle around the burrow. The buffer shall be staked and roped off prior to initiating any activity onsite including power line construction. No activity shall take place within the avoidance buffer area to ensure that disturbance to nesting birds does not occur to ensure compliance with the Migratory Bird Act. Any disturbance to nesting BUOW would require prior consultation, approval and mitigation in accordance with California Fish and Game requirements. If these measures may require the need for passive relocation or require potentially detrimental effects to owls, then barricading BUOW burrows shall be an alternative based upon CDFG approval (see condition below).~~

~~Disturbing nesting BUOW that may cause changes of behavior, plugging the~~

Comment [s16]: Decide where these are most pertinent in the document.

Comment [sy17]: These mitigations have not been finalized with CDFG yet and will likely have to be incorporated in the NEPA/CEQA process

~~burrow entrance or causing the burrow to collapse could effectively destroy the nest, and as such, require a State permit.~~

~~If an active, non-breeding BUOW burrow is detected all project activities should be located at a 160-foot radius as determined by a qualified biologist, from the occupied burrow to create and mark a non-disturbance buffer around the burrow. The non-disturbance buffer would be established with flagging by the biological monitor prior to any project related activities.~~

~~Per Magdalena~~

~~According to our DFC 1995 Staff report, burrows should be provided with 250 ft buffers during the breeding season (Feb. 1 through August 31) and 160 ft buffers during the nonbreeding season. The Department would prefer these buffers over using hay bales. If it is not possible to achieve these buffers and justified as provided above, then hay bale barriers could be provided to all active burrows that cannot be given these required buffers. In addition, it is recommended that hay bales extend 25 feet on either side of the burrow for a total of 50 ft, and that during the breeding season hay bales can be stacked 3 bales high, and during the non-breeding season they can be stacked 2 bales high. All burrows which are located within the project area and within 250 ft of active construction will be monitored weekly for occupation and any signs of disturbance by project activities.~~

Pallid Bat and California Leaf-nosed Bat

These species may use all or portions of the Project Area for foraging, though neither is expected to roost within the Project Area or immediate vicinity. Project implementation would result in the permanent disturbance of approximately 1,886 acres of potentially suitable foraging habitat. This disturbance would reduce the quality of the foraging habitat, but is not expected to totally eliminate it. The potential for continued foraging following project implementation would be supported by the larger drains and canals within the CSE Facility that would remain undisturbed and could continue to support prey populations for both species. Given the large amount of suitable foraging habitat in the immediate vicinity of the project and the continued foraging opportunities following project implementation, the proposed project is not expected to significantly impact either the pallid bat or the California leaf-nosed bat.

4.1.1.2.4 Golden Eagle

Suitable nesting habitat is not present within the private land portion of the survey area and the species is not expected to nest within or in the immediate vicinity of the survey area. As such, impacts to nesting golden eagles are not expected.

The proposed project would result in the permanent disturbance of approximately 1,886 acres of potentially suitable foraging habitat for golden eagles. This would not represent a significant impact to this species given the vast amounts of suitable foraging habitat in the surrounding

vicinity and the relative infrequency with which the species has been observed in the survey area and vicinity.

The Gen-tie line would represent a potential impact to Golden Eagles by presenting a risk of collisions. Bird flight diverters will be installed on the Gen-tie Line along the segments that cross the Westside Main Canal and Mount Signal Drain, which would alleviate some of the risk. Given the relative infrequency within which Golden Eagles apparently use the Project Area and the use of bird flight diverters and the implementation of an ABPP the impact to Golden Eagles from the construction of the Gen-tie line is expected to be minimal.

4.1.2 Impact to Riparian Habitat or Sensitive Natural Communities

For purposes of this report, sensitive vegetation communities (i.e., natural communities) are those identified by the CDFG (State of California 2010b) and CEQA. Reasons for the designation as “sensitive” include restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities.

The project would have a significant impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS.

As discussed in Section 4.0 and shown on Table 6, creosote bush–white bursage scrub, mesquite woodland, and desert wash vegetation are the three sensitive natural communities potentially affected by the proposed project. These communities are considered sensitive whether or not they have been disturbed.

Impacts to creosote bush–white bursage scrub and desert wash vegetation are detailed in **Table 5** and shown on **Attachment 1: Vegetation Mapbook**. Though very limited in extent, these impacts could be considered potentially significant and may require mitigation to offset this impact to sensitive habitats.

Soil disturbed due to grading during construction and continued use of the solar field and access roads along the transmission line may result in the introduction or increased density of non-native invasive plant species. These species can undermine the habitat quality and integrity of the native plant communities. The risk of non-native invasive species establishment in sensitive natural communities will be assessed as part of the Weed Risk Assessment, which has not yet been completed for the project.

4.1.3 Impact to Jurisdictional Waters

The drainage report for the proposed project has not yet been submitted to the agency in order to verify the jurisdictional status of the drainage features present within the Project Area. Further a final drainage report detailing proposed impacts to jurisdictional waters has not yet been

prepared. Thus, impacts to jurisdictional waters (both state and federal) cannot be determined at this time.

4.1.4 Impact to Wildlife Movement and Nursery Sites

Wildlife movement corridors are considered sensitive by resource and conservation agencies. The impact analysis provided below is based on the CEQA thresholds of significance. The project would have a significant impact if it would:

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

A chain link perimeter fence will surround the proposed CSE Facility, allowing small mammals and reptiles to move freely through the site. Although medium- and large- sized mammals will not be able to move through the solar field, it should not inhibit their movement through the Yuha Basin.

Thus, there is no anticipated impact to wildlife movement or nursery sites, and no additional mitigation would be required.

4.2 Gen-tie Line (Federal Lands)

4.2.1 Impact to Special Status Species

4.2.1.1 *Special Status and Priority Plant Species*

No federally listed, state-listed or BLM sensitive plant species are known or expected to occur within the Gen-tie corridor on BLM lands. Thus, there are no anticipated impacts to federally listed, state-listed or BLM sensitive plant species as the result of project implementation.

4.2.1.1.1 *Priority Plant Species*

The ribbed cryptantha is the only priority plant species with a high likelihood of occurrence within the Gen-tie corridor. Some impacts to this species are anticipated because of its diffuse pattern throughout the broad wash habitat present within the corridor. However, impacts are anticipated to be relatively minor based on the species diffuse pattern throughout the area in and around the Gen-tie corridor and the small size of anticipated disturbance within the Project Area.

Though considered a sensitive species, the ribbed cryptantha's relatively low ranking status means that any mitigation requirements would be satisfied with mitigation for this species' habitat (e.g., mitigation for the wash habitat would mitigate for impacts to the wash habitat as well as for the species). Species-specific mitigation requirements would not be necessary

4.2.1.2 *Special Status Wildlife Species*

4.2.1.2.1 *Federally Listed Species*

Expected impacts to Southwestern Willow Flycatcher, Yuma Clapper Rail and Mountain Plover are discussed in **Section 4.1.1.2.1**. No impacts to these species are expected as the result of project implementation of federal lands because suitable habitat for these species is not present within the Gen-tie survey area and occurrence is not expected. Expected impacts to peninsular bighorn sheep are discussed below.

Peninsular Bighorn Sheep

No effects to Peninsular bighorn sheep are anticipated because there is no suitable habitat for the species in the action area, the closest known habitat is approximately 14 miles west of the action area, and the nearest known occurrence is 18 miles west of the action area.

4.2.1.2.2 *State Listed Species*

State listed species with the potential to occur within the Gen-tie survey area include : greater Sandhill Crane (*Grus canadensis tabida*), barefoot-banded gecko (*Coleonyx switaki*), Yuma clapper rail and Peninsular bighorn sheep. Potential impacts to Sandhill crane and barefoot-banded gecko are discussed in **Section 4.1.1.2.3**. Yuma clapper rail is discussed in **Section 4.1.1.2.1**. No impacts to these species are expected as the result of project implementation of federal lands because suitable habitat for these species is not present within the Gen-tie survey area and occurrence is not expected. Peninsular bighorn sheep is discussed in **Section 4.2.1.2.1**.

4.2.1.2.3 *BLM Sensitive Species*

Colorado Desert Fringe-toed Lizard

Direct impacts to Colorado desert fringe-toed lizard may occur during construction of the Gen-tie line. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of transmission towers or solar facility components may result in the direct mortality, injury, or harassment of Colorado desert fringe-toed lizards. These impacts would be considered significant and mitigation would be required, although mitigation for FTHL would also act as mitigation for this species, and no additional mitigation is anticipated.

The creosote bush–white bursage scrub vegetation within the Gen-tie corridor provides habitat for this species, and impacts to this habitat could be potentially significant for the Colorado desert fringe-toed lizard. Impacts to Colorado desert fringe-toed lizard habitat would be reduced via the following measures.

- The majority of the transmission line towers associated with the Gen-tie line will be located adjacent to other existing transmission lines and new access roads will be limited to short spur roads extending from existing access roads

- Extensive resource surveys have been conducted to facilitate the siting of the transmission components to insure they are located in a manner that is the least disturbing to resources.
- Whenever possible, any removal of vegetation will be in the form of trimming instead of root rubbing, to allow shrubs to readily re-sprout. The only soil removal necessary during transmission construction will be during excavation of tower footings and trenching.

The Proposed Alternative for the Gen-tie line may permanently impact approximately 3.0 acres and temporarily impact approximately 19.8 acres of suitable Colorado Desert fringe-toed lizard habitat.

Disturbance of soil and vegetation will take place during construction, which can encourage invasive, exotic plant species to encroach into Colorado Desert fringe-toed lizard habitat. In addition, construction vehicles and equipment can transport seeds and vegetation from other regions within their tires and other various parts under the vehicles. This potential increase in invasive, exotic plant species would be considered a significant impact to Colorado desert fringe-toed lizard due to construction of the proposed project and mitigation would be required.

General O&M activities that may be conducted along the transmission line include equipment inspection and/or repairs, transmission tower washing, and weed abatement activities. These O&M activities will require vehicles to occasionally drive the access roads along the transmission line.

Colorado desert fringe-toed lizard injury or mortality could potentially occur due to occasional use of the transmission line access roads, or driving access roads within the solar field, weed abatement, or any other activities that may result in ground disturbance outside of the designated access roads. The anticipated frequency of travel along Gen-tie access roads is expected to represent a negligible increase in traffic compared to the ongoing traffic associated with construction and maintenance of the IV Substation, Border Patrol activity and OHV use of the area.

Flat-tailed Horned Lizard

Direct impacts to FTHL may occur during construction of the Gen-tie line. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of transmission towers or solar facility components may result in the direct mortality, injury, or harassment of FTHLs. These impacts would be considered significant and mitigation would be required.

The proposed transmission corridor alternatives are within the Yuha Desert Flat-tailed Horned Lizard Management Area, as designated in the 2003 *Flat-tailed Horned Lizard Rangewide Management Strategy* (RMS; ICC 2003). The creosote bush–white bursage scrub vegetation within the Management Area provides habitat for this species, and impact to this habitat is considered potentially significant. In accordance with the *Flat-tailed Horned Lizard Rangewide Management Strategy*, compensation would be required for impact to FTHL habitat. In

accordance with the RMS, the proposed impacts to the MA are the minimum necessary to construct the project.

- The proposed CSE Facility site is located outside of the Yuha MA, within active agricultural fields.
- The majority of the transmission line towers associated with the Gen-tie line will be located adjacent to other existing transmission lines and new access roads will be limited to short spur roads extending from existing access roads
- Extensive resource surveys have been conducted to facilitate the siting of the transmission components to insure they are located in a manner that is the least disturbing to resources.
- Whenever possible, any removal of vegetation will be in the form of trimming, instead of root rubbing, to allow shrubs to readily resprout. The only soil removal necessary during transmission construction will be during excavation of tower footings and trenching.

The Proposed Alternative for the Gen-tie line may permanently impact approximately 3.0 acres and temporarily impact approximately 19.8 acres of FTHL habitat within the MA.

Disturbance of soil and vegetation will take place during construction, which can encourage invasive, exotic plant species to encroach into FTHL habitat. In addition, construction vehicles and equipment can transport seeds and vegetation from other regions within their tires and other various parts under the vehicles. This potential increase in invasive, exotic plant species would be considered a significant impact to FTHL due to construction of the proposed project and mitigation would be required.

General O&M activities that may be conducted along the transmission line include equipment inspection and/or repairs, transmission tower washing, and weed abatement activities. These O&M activities will require vehicles to occasionally drive the access roads along the transmission line.

FTHL injury or mortality could potentially occur due to occasional use of the transmission line access roads, or driving access roads within the solar field, weed abatement, or any other activities that may result in ground disturbance outside of the designated access roads. The anticipated frequency of travel along Gen-tie access roads is expected to represent a negligible increase in traffic compared to the ongoing traffic associated with construction and maintenance of the IV Substation, Border Patrol activity and OHV use of the area.

4.2.2 Impact to Riparian Habitat or Sensitive Natural Communities

For purposes of this report, sensitive vegetation communities (i.e., natural communities) are those identified by the CDFG (State of California 2010b) and CEQA. Reasons for the designation as “sensitive” include restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities.

The project would have a significant impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS.

As discussed in Section 4.0 and shown on Table 6, creosote bush–white bursage scrub, mesquite woodland, and desert wash vegetation are the three sensitive natural communities potentially affected by the proposed project. These communities are considered sensitive whether or not they have been previously disturbed.

The proposed impact to creosote bush–white burr sage scrub and desert wash vegetation, as detailed in **Table 5** and shown on **Attachment 1: Vegetation Mapbook**. Though very limited in extent, these impacts could be considered potentially significant and may require mitigation to offset this impact to sensitive habitats.

Soil disturbed due to grading during construction and continued use of the access roads along the transmission line may result in the introduction or increased density of non-native invasive plant species. These species can undermine the habitat quality and integrity of the native plant communities. The risk of non-native invasive species establishment in sensitive natural communities will be assessed as part of the Weed Risk Assessment, which has not yet been completed for the project

4.2.3 Impact to Jurisdictional Waters

The drainage report for the proposed project has not yet been submitted to the agency in order to verify the jurisdictional status of the drainage features present within the Project Area. Further, a final drainage report detailing proposed impacts to jurisdictional waters has not yet been prepared. Thus, impacts to jurisdictional waters (both state and federal) cannot be determined at this time.

4.2.4 Impact to Wildlife Movement and Nursery Sites

Wildlife movement corridors are considered sensitive by resource and conservation agencies. The impact analysis provided below is based on the CEQA Guidelines Appendix G thresholds of significance. The project would have a significant impact if it would:

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- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The proposed Gen-tie line would not inhibit the movement of wildlife in and around the Gen-tie survey area. No fencing or other terrestrial obstruction would be installed. Moreover, the proposed Gen-tie line would be collocated with several other existing transmission lines and would not represent a novel feature on the landscape.

Thus, there is no anticipated impact to wildlife movement or nursery sites, and no additional mitigation would be required.

4.2.5 Impact to California Desert Conservation Area

Pursuant to CEQA, the project would have a significant impact if it would:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The BLM manages all land uses within the ACEC in order to minimize impact to this sensitive area. The proposed transmission lines are an allowable use under the CDCA, as the proposed ROW falls within the CDCA designated "Utility Corridor N." All proposed impacts to resources discussed in Section 4 are in conformance with the CDCA and maintain the integrity and intent of the Conservation Plan.

5.0 RECOMMENDED MITIGATION

A number of general measures, designed to reduce potential indirect impact to resources in the Project Area as well as restore and/or improve the quality of habitat in the Project Area, will be implemented after construction as standard O&M protocols. Similarly, mitigation measures for specific sensitive biological resources should be implemented in order to reduce the potential direct and indirect impacts of project implementation.

~~[This section will be expanded to include FTHL mitigation (actual ratios are yet to be determined) and BUOW mitigation (actual ratios are yet to be determined). These will be determined through further consultation with BLM and CDFG.]~~

Comment [s18]: Not enough information to comment. It is recommended, that these issues should be finalized to complete NEPA analysis of effects. This would put the Applicant and the agency in a more defensible position.

Comment [sy19]: Since many mitigation measures are still outstanding pending agency consultation/coordination, this is probably better handled in the NEPA/CEQA process.

6.0 CUMULATIVE EFFECTS

The proposed project has the potential to result in impacts to sensitive vegetation communities, flat-tailed horned lizards, Burrowing Owls, Mountain Plovers, migratory birds, and jurisdictional water resources. However, with the implementation of the mitigation measures outlined in Section 5, these impacts would be reduced to a level of less than significant. As with the proposed project, each of the following projects would be required to provide mitigation for any impacts to biological resources; therefore, the proposed project would not contribute to a significant cumulative biological resources impact.

Table 842 – Approved and/or Proposed Projects In Imperial Valley Under BLM Jurisdiction

<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumptions</u>	<u>Status</u>
<u>“S” Line Upgrade 230-kV Transmission Line Project (Imperial Irrigation District)</u>	<u>The “S” Line route runs the IID/San Diego Gas & Electric Imperial Valley Substation located on BLM lands. The project is located in Imperial County. The IID proposes to upgrade about 18 miles of the 230-kV overhead electrical transmission line by installing (+/-) 285 new double-circuit steel poles (including all existing polymer horizontal insulators) to replace the existing wood poles supporting a single 230-kV circuit. The execution plan is to complete the pole replacement and upgrades in three poles. The “S” Line would be upgraded at distinct locates with an assigned order of importance on the basis of system outages, structural reliability, risk, construction feasibility, and costs.</u>	<u>Impacts to the burrowing owl, Yuma clapper rail, and flat-tailed horned lizard. Mitigation reduces impacts to less than significant.</u>	<u>18 miles various Composed segments. I-8, Hwy 86, 10 miles southwest of the City of El Centro, near Liebert and Wixom Toads, to the north and terminating at the EL Centro Switching Station on Dogwood Road new Villa Road.</u>	<u>For 18 miles of transmission line there are 108 acres of disturbance to BLM land (not all of this is BLM, 2.151 acres is on BLM land and the rest is on private land).</u>	<u>End review 12/17/2009; MND filed with mitigation measures. ROW amended/ Renewed 03/2010.</u>
<u>Imperial Valley Solar (Stirling</u>	<u>230-kV line (proposed in DEIS that is currently out on</u>	<u>Visual resources are significant and</u>	<u>Imperial Valley, 100 miles east of San</u>	<u>Impacts of 6,571 acres</u>	<u>BLM ROD signed on</u>

<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumption</u> <u>s</u>	<u>Status</u>
<u>Energy Systems Two, LLC)</u>	<u>CEC website)-CACA-047740. Develop electric-generating facility with normal capacity of 709 megawatts using concentrated solar power. Constructed on approximately 6,500 acres (10 square miles). Construction done in two phases and will include operation and administration building, maintenance building, water treatment system, yard tanks, control building, and utilities and services for ancillary facilities and structures.</u>	<u>unavoidable. All others less than significance after mitigation. Biological resources impact to 92.8 acres of Sonoran creosote brush scrub. Compensatory mitigation for 6,619.9 acres of FTHL suitable habitat. Loss of approximately 165 acres of waters of the U.S. and 840 acres of CDFG jurisdictional streambeds. Impacts to 328 known prehistoric and historical surface archaeological resources. Paleontological resources are documented and are likely. DESCP would mitigate potential storm water and sediment project-related impacts. Potential surface and groundwater impacts. Conversion of approximately 6,500 acres of land-mitigation</u>	<u>Diego, 14 miles west of EL Centro, and 4 miles east of Ocotillo Wells.</u>	<u>of BLM lands and 93 acres of Yuha FTHL MA. Impacts to 840 acres of CDFG jurisdictional streambeds. Impacts to 328 known prehistoric and historical surface archaeological resources.</u>	<u>9/28/10. CEQ decision on 9/29/10.</u>

<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumption</u> <u>s</u>	<u>Status</u>
		<u>is required.</u>			
<u>Sunrise 500-kV Line IV West Solar Farm Interconnection to Imperial Valley Substation (authorized, parallels the South West Powerlink 500-kV Line-CACA-047658</u>	<u>The project also includes new 230-kV and 138-kV transmission lines and a 230-kV substation and rebuilt 138-kV substation. The U.S. Bureau of Reclamation is the lead agency with BLM as a cooperating agency. IB substation is completely surrounded by BLM land (5 miles of new transmission lines in the Yuha Desert). Project will be 120 feet wide and is proposed to run northwest of the Imperial Valley Substation in the shortest route possible while retaining a buffer of a minimum of 500 feet away from private land in the area.</u>	<u>Primary issues include cultural (historic properties, Native American lands, and archeological resources), biological (Flat-tailed horned lizard and Western Burrowing Owl), and paleontological (fossils). 7.65 acres of permanent impact. 12.2 acres of temporary impact. 770 acres of BLM land.</u>	<u>Imperial Valley to Penasquitos. Located in the Yuha Basin Area of Critical Habitat in the southwestern portion of Imperial County. 8/9 miles southwest of the town of El Centro. Map included.</u>	<u>Impact to 180.1 acres of Yuha FTHL MA.</u>	<u>POWER Engineers Final Environmental Impact Statement (EIS) complete. ROW authorized 02/2009</u>
<u>C Solar Development LLC West</u>	<u>CSOLAR Development, LLC West proposed 230-kV line (follows the Dixieland Line alignment) CACA-051644. 250 megawatts of electricity on 1,100 acres of previously disturbed private farmland. Will cross 0.5 mile of public land and then aligns to the existing</u>	<u>Proposed ROW lies within the Yuha Basin ACEC and in the Yuha Desert Management Area for the flat-tailed horned lizard. Will fully mitigate impacts. Permanently impact 9 acres of public lands (will use existing</u>	<u>Follows the 230-kv lines from the international border going north alignment. Map in reference document.</u>	<u>Impacts to 13.7 acres of BLM Land and 3 acres of Yuha FTHL MA.</u>	<u>Draft plan for development complete 1/25/10. Currently working on NEPA analysis.</u>

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<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumptions</u>	<u>Status</u>
	<u>Southwest Powerlink.</u>	<u>access to minimize impact). 69.9 acres of BLM land</u>			
<u>SDG&E Photovoltaic Solar Field</u>	<u>SDG&E proposed photovoltaic solar field. CACA-051625. Producing 12 to 14 megawatts of renewable energy.</u>	<u>To be determined in the plan of development (POD). 351,250 (this number will be reduced per their new POD) acres of impact to BLM land.</u>	<u>Located on approximately 100 acres of federal land directly adjacent to SDG&E's Imperial Valley substation.</u>	<u>Impacts to biological resources have yet to be assessed fully. Impacts to 100 acres of BLM Lands.</u>	<u>Application submitted for transportation and utility systems.</u>
<u>North Gila to Imperial Valley #2 (Southwest Transmission Partners)</u>	<u>Southwest Transmission Partners double-circuit 500-kV line coming in from the east. Project would provide high-voltage transmission capacity in the southeastern U.S. to facilitate the development and interconnection of renewable energy. The total ROW will be approximately 1,903 acres of BLM Land. Project will be approximately 75 miles long. CACA51575.</u>	<u>Visual impacts would be minimized to the extent possible by locating the structures of the new line adjacent to and with the same spacing as existing structures. Impacts to biological resources will result. 13,881.02 acres of BLM land.</u>	<u>Between North Gila Substation in Yuma County, Arizona and the Imperial Valley Substation in Imperial County. Project will follow the same route as existing Southwest Powerlink 500-kV line.</u>	<u>Impacts to 450 acres of BLM Lands and approximately 3 acres of Yuha FTHL MA disturbed.</u>	<u>STP is preparing a Plan of Development. Have not started on the NEPA analysis.</u>
<u>Dixieland Connection to IID</u>	<u>Interconnection of IID's "S" Line from the IID Substation to the Imperial Valley</u>	<u>Lies in the Yuha Basin ACEC in the Yuha Desert Management</u>	<u>Follows the 230-kV lines from the international</u>	<u>20 acres of impacts to FTHL and</u>	<u>Application filed and currently still</u>

<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumption</u> <u>s</u>	<u>Status</u>
<u>Transmission System</u>	<u>Substation Route.</u>	<u>Area for flat-tailed horned lizards and Western burrowing owl (impacts will be mitigated). Potential impacts to cultural and paleontological resources.</u>	<u>border going north alignment. Approximately 10 to 12 miles southwest of the City of El Centro, Imperial County.</u>	<u>Western burrowing owl. 34.2 acres of land disturbed.</u>	<u>in planning phases.</u>
<u>C Solar Development LLC</u>	<u>CSOLAR Development, LLC West proposed solar energy facility consisting of three primary components: 1) the construction and operation of a 200 Megawatt Imperial Solar Energy Center South solar energy facility; 2) the construction and operation of electrical transmission lines that would connect the solar power facility to the existing Imperial Valley Substation; and, 3) the improvement and use of an existing dirt access road, a portion of which traverses BLM lands. As part of the project, the facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley</u>	<u>The proposed 120-foot ROW for the electrical transmission line corridor and an existing dirt access road that would be widened by five feet to provide secondary access are both located in the Yuha Basin ACEC in the Yuha Desert Management Area for flat-tailed horned lizards. Potential impacts to cultural and paleontological resources.</u>	<u>The proposed access road traverses both BLM lands and private land, and is located on the west side of the Westside Main Canal. The proposed transmission lines and a portion of the access road would be located within the Yuha Desert, and within BLM's Utility Corridor "N" of the California Desert Conservation Area plan (the CDCA Desert Plan).</u>	<u>Impacts to 10.1 acres of disturbed lands under the jurisdiction of BLM.</u>	<u>Final EA, April 2011.</u>

<u>Project Name</u>	<u>Description of Project</u>	<u>Impacts</u>	<u>Size/Location</u>	<u>Assumption</u> <u>s</u>	<u>Status</u>
	<u>Substation via a 230 kV electrical transmission line and associated access.</u>				
<u>Mount Signal Solar Farm</u>	<u>Proposed 82-LV line (follows the C Solar Imperial Solar Energy Center South alignment). Project would create 200 megawatts of electricity on 1,375 acres of private farmland in the Imperial Valley. Proposed transmission line route would parallel existing 230 kV lines and share transmission line with C Solar Imperial Valley Energy South project.</u>	<u>Lies in the Yuha Basin ACEC in the Yuha Desert Management Area for flat-tailed horned lizards and Western burrowing owl (impacts will be mitigated). Potential impacts to cultural and paleontological resources.</u>	<u>Located on 1,375 acres of privately owned land located 2.5 to 7.5 miles west of Calexico in southern Imperial County. Right-of-Way is located within BLM lands.</u>		<u>Application filed and currently working on NEPA Analysis.</u>

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Table 9 – Approved and/or Proposed Projects In Imperial Valley Under Imperial County Jurisdiction

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
1	<u>Las Aldeas Specific Plan</u>	<u>North of Adams Avenue, east of Austin Road and west of La Brucheri Road</u>	<u>Las Aldeas Specific Plan Westshore (Lerno) Development</u>	<u>City of El Centro working on staff report and condition of approval.</u>	<u>The Las Aldeas Specific Plan project is a mixed-use project of 2,156 single-family residential units, 84 multifamily residential units, 467 4-plex residential units, 27.95 acres of commercial zoning, 10.79 acres of light manufacturing zoning, 21.78 acres of park, 48.18 acres of retention basin, and 23.09 acres for two school sites.</u>
2	<u>Linda Vista</u>	<u>West side of Clark Road and I-8 and McCabe Road</u>	<u>City of El Centro Brent Grizzle</u>		<u>The Linda Vista project is a mixed-use project consisting of 182 single-family homes and a 6-acre commercial lot.</u>
3	<u>Desert Village #6</u>	<u>West of Clark Road between I-8 and Home Road</u>	<u>City of El Centro</u>	<u>Approved granted extension of 2 years for filing final map of subdivision (Aug. 2008)</u>	<u>The Desert Village Project #6 consists of 95 single-family homes, 260 apartments, and 7.3 acres of commercial.</u>
4	<u>Commons</u>	<u>East side of Dogwood Avenue between I-8 and</u>	<u>City of El Centro</u>		<u>The Commons is a regional shopping center of 780,000</u>

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<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		<u>Danenberg Drive</u>			<u>square feet.</u>
<u>5</u>	<u>Imperial Valley Mall</u>	<u>Southeast corner of Dogwood Road and Danenberg Road</u>	<u>City of El Centro</u>		<u>The Imperial Valley Mall consists of a regional shopping center of 1,460,000 square feet and 306 single-family houses</u>
<u>6</u>	<u>Miller Burson</u>	<u>South of Ross Road and east of Austin Road</u>	<u>Miller Burson Development Design and Engineering</u>	<u>Responses to Draft EIR under preparation.</u>	<u>The Miller Burson project consists of a 570 single-family residential project.</u>
<u>7</u>	<u>Courtyard Villas</u>	<u>Northwest of I-8 and Austin Road</u>	<u>City of El Centro</u>	<u>EIR in Process</u>	<u>The Courtyard Villas is a project consisting of 54 single-family homes.</u>
<u>8</u>	<u>Willow Bend (East) & Willow Bend (West)</u>	<u>Northeast corner of Clark Road and McCabe Road</u>	<u>City of El Centro</u>		<u>The Willow Bend (East) and Willow Bend (West) is a combined project of 216 single-family homes.</u>
<u>9</u>	<u>Lotus Ranch</u>	<u>Southwest corner of I-8 and La Brucherri Road.</u>	<u>Gary McPhetridge</u>	<u>On hold per applicant request (June 2008)</u>	<u>The Lotus Ranch project is a residential project of 616 single-family homes and a 600-student elementary school.</u>
<u>10</u>	<u>Mosaic</u>	<u>South of SR-86 and bisected by Dogwood Ranch</u>		<u>EIR in Process</u>	<u>The Mosaic project is a residential project of 1,156 single-family units and 2.7 acres of commercial.</u>

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<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
<u>11</u>	<u>Hallwood/Calexico Place 111 & Casino</u>	<u>Southwest corner of SR-111 and Jasper Road</u>	<u>City of Calexico</u>	<u>Approved</u>	<u>The Calexico Place 111 and Casino project is a mixed-use project of residential, commercial, and casino.</u>
<u>12</u>	<u>Calexico Mega Park</u>	<u>Southeast corner of SR-111 and Jasper Road</u>			<u>The Calexico Mega Park project is a mixed-use project of a commercial and regional shopping center.</u>
<u>13</u>	<u>County Center II Expansion</u>	<u>Southwest corner of McCabe Road and Clark Road (8th Street in the City of El Centro)</u>	<u>County and ICOE</u>	<u>EIR in Process</u>	<u>mixed-use project of a commercial center, expansion of the Imperial County Office of Education, a Joint-use Teacher Training and Conference Center, Judicial Center, County Park, Jail Expansion, County Administrative Complex, Public Works Administration, and a County Administration Complex.</u>
<u>14</u>	<u>Desert Springs Oasis</u>	<u>Northwest of the Boley Road and Westmoreland Road</u>	<u>Rob and Don Preston of the Barone Group</u>	<u>EIR in Process</u>	<u>The project components include the construction of a geothermal brine processing facility, a 49.9-MW (net) turbine-generator facility, 230-</u>

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<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<u>kV switchyard, power distribution centers, and a short interconnection transmission line to the IID _____ electrical transmission _____ grid exporting _____ generated power.</u>
<u>15</u>	<u>Mt. Signal</u>	<u>Eight miles southwest of the City of El Centro</u>	<u>MMR _____ Power Solutions, LLC</u>		<u>The Mt. Signal project is a proposed 49.4 megawatt solar hybrid power station on roughly 974 acres.</u>
<u>16</u>	<u>Coyote Wells (Wind Zero)</u>	<u>Ocotillo/Nomirage Area</u>	<u>Wind _____ Zero Group, Inc.</u>	<u>Approved</u>	<u>The project is a 944+/- acre privately owned law _____ enforcement training facility to meet the needs of local and regional _____ law enforcement and public safety agencies. This project includes several closed circuit road tracts, shooting ranges, tactical _____ training buildings, classrooms, temporary housing, RV park, 2 heliports, airstrip, along with a number of support facilities</u>
<u>17</u>	<u>Granite Carroll Sand and</u>	<u>4 miles northwest of</u>	<u>Granite</u>	<u>Approved</u>	<u>The Granite Carroll</u>

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<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
	<u>Gravel Mine</u>	<u>Ocotillo</u>			<u>Sand and Gravel Mine is a mining operation project.</u>
<u>18</u>	<u>Imperial Valley Solar Project (Formerly SES Solar Two)</u>	<u>4 miles east of Ocotillo</u>	<u>BLM</u>	<u>BLM's Record of Decision Signed</u>	<u>The Imperial Valley Solar Project is an electric generating facility capable of producing approximately 750 megawatts of electricity on approximately 6,500 acres.</u>
<u>19</u>	<u>Imperial Solar Energy Center West</u>	<u>8 miles west of the City of El Centro</u>		<u>EIR/EA in Process</u>	<u>The Imperial Solar Energy Center West project is a photovoltaic solar facility capable of producing approximately 250 megawatts of electricity on approximately 1,130 acres.</u>
<u>20</u>	<u>Imperial Solar Energy Center South</u>	<u>Mt. Signal area of unincorporated Imperial County, approximately eight miles west of the City of Calexico.</u>	<u>CSOLAR Development, LLC</u>	<u>Final EIR, April 2011.</u>	<u>The proposed solar energy facility consists of three primary components: 1) the construction and operation of a 200 Megawatt Imperial Solar Energy Center South solar energy facility; 2) the</u>

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<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					construction and operation of electrical transmission lines that would connect the solar power facility to the existing Imperial Valley Substation; and, 3) the improvement and use of an existing dirt access road, a portion of which traverses BLM lands. As part of the project, the facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley Substation via a 230 kV electrical transmission line and associated access.
<u>21</u>	<u>Superstition Solar 1</u>	<u>Westmorland</u>	<u>Superstition Sunpeak</u>	<u>EIR in Process</u>	<u>The Superstition Solar 1 project is a photovoltaic solar energy facility capable of producing 500 megawatts of electricity on approximately 5,516 acres.</u>
<u>22</u>	<u>Mount Signal Solar</u>	<u>Mt. Signal</u>	<u>8 Minute</u>	<u>In Process</u>	<u>The Mount Signal Solar project is a solar energy</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<u>project located on approximately 1,375 acres of agriculture land and will produce approximately 200 megawatts of electricity.</u>
<u>23</u>	<u>Bethel Solar X, Inc</u>	<u>Calexico</u>	<u>Jim Doyle</u>	<u>In Process</u>	<u>The Bethel Solar X, Inc project is a solar hybrid energy project that will produce approximately 49.40 megawatts of electricity on approximately 571 acres of land.</u>
<u>24</u>	<u>Energy Solar Source I, LLC</u>	<u>Niland</u>	<u>Energy Source</u>	<u>In process</u>	<u>The Energy Solar Source I project is a solar energy project that will produce 80 megawatts of electricity on approximately 480 acres of land.</u>
<u>25</u>	<u>Energy Solar Source II, LLC</u>	<u>Niland</u>	<u>Energy Source</u>	<u>In process</u>	<u>The Energy Solar Source II project is a solar energy project that will produce 80 megawatts of electricity on 480 acres of land.</u>
<u>26</u>	<u>Salton Sea Solar Farm I</u>	<u>Calipatria</u>	<u>8 minute/81BM</u>	<u>County of Imperial just received</u>	<u>The Salton Sea Solar Farm I project is a solar energy project that will produce approximately</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					49.9 megawatts of electricity on approximately 320 acres of land.
<u>27</u>	<u>Salton Sea Solar Farm II</u>	<u>Calipatria</u>	<u>8 minute/81BM</u>	<u>County of Imperial just received</u>	The Salton Sea Solar Farm II project is a solar energy project that will produce approximately 100 megawatts of electricity on approximately 623 acres of land.
<u>28</u>	<u>Calipat Solar Farm I</u>	<u>Calipatria</u>	<u>8 minute energy</u>	<u>County of Imperial just Received</u>	The Calipat Solar Farm I project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.
<u>29</u>	<u>Calipat Solar Farm II</u>	<u>Calipatria</u>	<u>8 minute energy</u>	<u>County of Imperial just received</u>	The Calipat Solar Farm II project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.
<u>30</u>	<u>Frink Road Solar Power</u>	<u>Niland</u>	<u>Granite Construction</u>	<u>County of Imperial in process</u>	The applicant Granite Construction Company proposes to construct a

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<u>Solar Power Generator Farm. It will be comprised of 436 Integrated High Concentration Photovoltaic Solar Power Generators, 200 Square foot single story equipment building, twenty three (23) concrete transformer pads, onsite water storage tank, and an all weather fire access road. Additionally, a 10-acre substation is proposed to be constructed in the northern portion of the project site.</u>
<u>31</u>	<u>Keystone Solar Power</u>	<u>Mesquite SPA</u>	<u>Granite Construction</u>	<u>County of Imperial in process</u>	<u>The Applicant, Granite Construction Company, is proposing to operate a 6.06 megawatt photovoltaic solar plant. The project would include a 200-square foot single story equipment building five (5) concrete transformer pads, an all-weather fire access</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<u>road, a water storage tank and 88 high-concentration photovoltaic (HCPV) Solar Power Generators (Machines).</u>
<u>32</u>	<u>Midway Solar Farm I</u>	<u>Calipatria</u>	<u>8 minute</u>	<u>County of Imperial just received</u>	<u>The Midway Solar Farm I project is a solar photovoltaic project that will produce approximately 50 megawatts of electricity on approximately 326 acres of land.</u>
<u>33</u>	<u>Midway Solar Farm II</u>	<u>Calipatria</u>	<u>8 minute</u>	<u>County of Imperial just received</u>	<u>The Midway Solar Farm II project is a solar photovoltaic energy project that will produce approximately 155 megawatts of electricity on approximately 803 acres of land.</u>
<u>34</u>	<u>IV Solar Company</u>	<u>Niland</u>	<u>Sun Peak Solar</u>	<u>Approved</u>	<u>The IV Solar Company project is a solar photovoltaic energy project that will produce approximately 23 megawatts of electricity on approximately 123</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					acres of land.
<u>35</u>	<u>Chocolate Mountain</u>	<u>Niland</u>	<u>8minute Energy</u>	<u>Approved</u>	<u>The Chocolate Mountain is a solar photovoltaic energy project that will produce approximately 49.9 megawatts of electricity on approximately 320 acres of land.</u>
<u>36</u>	<u>Ocotillo Express</u>	<u>Ocotillo</u>	<u>Pattern Energy</u>	<u>EIR/EIS in progress</u>	<u>The Ocotillo Express Wind Project consists of the construction and operation of wind turbine generators and associated facilities necessary to successfully generate up to 550 megawatts of electrical energy.</u>
<u>37</u>	<u>Hudson Ranch II</u>	<u>Niland</u>	<u>HR Power II</u>	<u>EIR to be prepared</u>	<u>The Hudson Ranch II project is a geothermal energy project that will produce approximately 49.9 megawatts of electricity on approximately 326.26 acres of land.</u>
<u>38</u>	<u>Black Rock Unit # 1 2 3 Geothermal Project</u>	<u>Niland</u>	<u>Calenergy</u>	<u>Approved by Imperial County Planning</u>	<u>Black Rock Unit # 1 2 3 project is a</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
				<u>Department and California Energy Commission</u>	<u>geothermal energy project that will produce approximately 159 megawatts of electricity on approximately 160 acres of land.</u>
<u>39</u>	<u>Wister Project</u>	<u>Niland</u>	<u>Ormat</u>	<u>EIR in process</u>	<u>The Wister Project is a 49.9 net MW geothermal power plant that will includes up to 50 geothermal water wells. This project is located in within the Salton Sea Known Geothermal Resource Area (KGRA). The project site is currently agricultural.</u>
<u>40</u>	<u>Ram Power/Overlay</u>	<u>Brawley</u>	<u>Ram Power</u>	<u>EIR in process</u>	<u>Ram Power Overlay is a geothermal energy project that will produce approximately 50 megawatts of electricity on approximately 27,875 acres of land.</u>
<u>41</u>	<u>Orni 19</u>	<u>Brawley</u>	<u>Ormat</u>	<u>EIR in Process</u>	<u>ORNI 19, LLC/Ormat Nevada Inc. proposes to permit, construct, operate and maintain</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<p><u>the East Brawley Geothermal Development Project that would consist of the following facilities. A 49.9 net MW geothermal power plant consisting of up to six (6) OEC binary generation units (12.5 MW gross each) with vaporizers, turbines, generators, condensers, pre-heaters, pumps and piping, motive fluid (isopentene) storage, a motive fluid vapor recovery system, a gas scrubber and a regenerative thermal oxidizer (RTO) and related equipment.</u></p>
42	<u>USS Mount Signal</u>	<u>7 miles southwest of the community of El Centro, California</u>	<u>USS MSS Permits, LLC</u>	<u>CUP Application Received/EIR to be prepared</u>	<p><u>The proposed project is a photovoltaic (PV) solar generating facility located approximately 7 miles southwest of the community of El Centro, California. The approximately 2,267 acre project site is located south of</u></p>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<u>Interstate 8 and west of Drew Road and is currently private land used for agriculture.</u>
<u>43</u>	<u>Mayflower Solar Farm Project</u>	<u>5.5 mile south southeast of the town of Calipatria</u>	<u>Solar Gen 2, LLC</u>	<u>CUP Application Received 6/24/11</u>	<u>The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 482 acres.</u>
<u>44</u>	<u>Arkansas</u>	<u>2.5 miles east of the town of Calipatria</u>	<u>Solar Gen 2, LLC</u>	<u>CUP Application Received 6/24/11</u>	<u>The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 481 acres.</u>
<u>45</u>	<u>Sonora</u>	<u>4.5 miles north northeast of the town of Calipatria</u>	<u>Solar Gen 2, LLC</u>	<u>CUP Application Received 6/27/11</u>	<u>The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 488 acres.</u>
<u>46</u>	<u>Alhambra</u>	<u>3.5 miles south southeast</u>	<u>Solar Gen 2, LLC</u>	<u>CUP Application</u>	<u>The project is a</u>

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		<u>of the town of Calipatria</u>		<u>Received 6/24/11</u>	<u>nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 482 acres.</u>
<u>47</u>	<u>Acorn Greenworks</u>	<u>9.7 miles southwest of El Centro just west of the Westside Main Canal.</u>	<u>Silverado Power, LLC dba Acorn Greenworks, LLC</u>	<u>CUP Application Received 6/30/11.</u>	<u>The project is a 150 megawatt alternating current solar photovoltaic (PV) project with 5,280 feet of transmission line. The project site is comprised of seven parcels (APN 051-380-032, 033, 052-170-027, 072, 073, 01 & 051-390-023) on 693 acres.</u>
<u>Project Name</u>	<u>Description of Project</u>		<u>Size/Location</u>	<u>Status</u>	
Renewable Energy Projects Within the Jurisdiction of BLM					
<u>1</u>	<u>"S" Line Upgrade 230-kV Transmission Line Project</u>	<u>The "S" Line route originates from the IID/San Diego Gas & Electric Imperial Valley Substation located on BLM lands and terminates at the El Centro Switching Station on Dogwood Road near Villa Road. The project is located in Imperial County. The IID proposed to upgrade about 18 miles of the 230kV overhead electrical transmission line by installing (+/-) 285 new double circuit steel poles (including all</u>	<u>18 miles of various composed segments. I 8, Hwy 86, 10 miles southwest of the City of El Centro, near Liebert and Wixom Roads, to the north, and terminating at the El Centro Switching Station on Dogwood Road near Villa Road.</u>	<u>End of review. December 17, 2009; MND filed with mitigation measures. ROW amended/ renewed March 2010.</u>	

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		<p>existing polymer horizontal insulators) to replace the existing wood poles supporting a single 230 kV circuit. The execution plan is to complete the pole replacement and upgrades in three phases. The "S" Line would be upgraded at distinct locations with an assigned order of importance on the basis of system outages, structural reliability, risk, construction feasibility, and costs.</p>			
2	Imperial Valley Solar (Formerly called SES Solar Two Project)	<p>On June 30, 2008, Stirling Energy Systems Solar Two, LLC (SES Solar Two, LLC) submitted an Application for Certification (AFC) to construct and operate the Stirling Energy Systems Solar Two project (SES Solar Two), a solar dish Stirling systems project in Imperial County, California. February 2010, the company formally requested that the project change its name to Imperial Valley Solar. The company name was also changed to Imperial Valley Solar LLC. The 6,500 acre project site is located on approximately 6,140 acres of federal land managed by the Bureau of Land Management (BLM) and approximately 360 acres of privately owned land. The site is approximately 100 miles east of San Diego, 14 miles west of El Centro, and approximately 4 miles east of Ocotillo, California. The proposed Imperial Valley Solar/SES Solar Two project would generate 750 megawatts of renewable energy. The plant would involve 30,000</p>	Imperial Valley, 100 miles east of San Diego, 14 miles west of El Centro, and 4 miles east of Ocotillo Wells.		<p>FEIS was prepared in July 2010. CEC approved application for certification in September 2010. The Notice of Availability of the CEC's Final Decision was made available on October 12, 2010. BLM ROW authorized October 12, 2010.</p>

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		SunCatchers using solar dish technology designed to automatically track the sun and collect and focus solar energy onto a power conversion unit that generates electricity. The project includes a 10.3 mile 230-kilovolt transmission line, substation, water pipeline, and access road.			
3	Sunrise Powerlink Transmission Project (CACA-047658)	This would consist of a transmission line from Imperial County to coastal San Diego County. For the first 36 miles of the Selected Alternative, the 500 kV transmission line will be built on BLM lands adjacent to the existing Southwest Powerlink 500 kV line. The Selected Alternative crosses approximately 49 miles of BLM land, approximately 19 miles of Forest Service land, approximately two miles of Department of Defense land, and approximately 0.4 miles of state land. The remainder of the line would cross lands in various ownerships, including private and local agencies. SDG&E has stated that it developed the Sunrise Powerlink Transmission Project for three major objectives: (1) to bring renewable energy resources to San Diego County from Imperial County by providing access to remote areas with the potential for significant development of renewable energy sources; (2) to improve electric reliability within the San Diego area by providing additional transmission during		Imperial Valley to Penasquitos. Located in the Yuha Basin Area of Critical Habitat in the southwestern portion of Imperial County, 8 to 9 miles southwest of the town of El Centro. Map included.	POWER Engineers final Environmental Impact Statement (EIS) complete. ROW authorized February 2009.

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		<p>peak loading and for the region's growing economy; (3) and to reduce congestion and power supply costs of delivering electricity to ratepayers.</p>			
4	Imperial Solar Energy Center—West (CACA-51644)	<p>Imperial Solar Energy Center—West consists of two primary components: 1) the construction and operation of the 250 megawatt Imperial Solar Energy Center West solar energy facility; and, 2) the construction and operation of the electrical transmission line and associated access/maintenance road that would connect from the solar facility to the existing Imperial Valley substation. The electricity generation process associated with the Proposed Action would utilize solar technology to convert sunlight directly into electricity. As part of the project, the solar facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley Substation via an approximately five mile long transmission line. The proposed right-of-way (ROW) for the electrical transmission line corridor would be 120 feet wide. The development of the solar energy center is on 1,130 acres of vacant land previously utilized for agricultural purposes. Project would include a facility consisting of ground mounted photovoltaic solar power generating system, supporting structures, operations and maintenance building, substation, water treatment facility, plant</p>		<p>Follows the proposed Dixieland alignment. Map in reference document.</p>	<p>Draft plan for development complete January 25, 2010. Currently working on CEQA/NEPA analysis.</p>

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
5	Imperial Solar Energy Center—South (CACA51645)	control system, meteorological station, and roads and fencing. The Imperial Solar Energy Center—South consists of three primary components: 1) the construction and operation of the 200 megawatt Imperial Solar Energy Center South solar energy facility; 2) the construction and operation of the electrical transmission lines that would connect from the solar power facility to the existing Imperial Valley substation; 3) the widening of an existing access road for ingress and egress to the Solar facility across Federal and private lands located along the west side of the Westside Main Canal. The electricity generation process associated with the Proposed Action would utilize solar technology to convert sunlight directly into electricity. As part of the project, the facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley Substation via an approximately five-mile long transmission line. The proposed ROW for the electrical transmission line corridor would be 120 feet wide. The project proponent is also requesting construction and operational access to the solar energy facility via use of an existing dirt road located along the west side of the Westside Main Canal, located within BLM and private lands.			The site of the proposed solar energy facility is located on 946.6 gross acres of privately owned, undeveloped and agricultural lands, in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles southwest of the City of El Centro and south of the community of Seeley. The proposed transmission lines and access road would be located within the Yuha Desert, and within BLM's Utility Corridor "N" of the California Desert Conservation Area plan. Imperial County is located in Southern California, bordering Mexico, west of Arizona, and east of San Diego County. Draft plan for development complete January 25, 2010. Currently working on CEQA/NEPA Analysis.
6	SDG&E Proposed	SDG&E proposed photovoltaic solar field.		Located on approximately	Application submitted

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
	Photovoltaic Solar Field (CACA-051625)	Producing 12 to 14 megawatts of renewable energy.		100 acres of federal land directly adjacent to SDG&E's Imperial Valley substation. Map included.	for transportation and utility systems. A draft Plan of Development has been submitted as of December 2010.
7	North Gila to Imperial Valley #2 Transmission Line (CACA-51575)	Southwest Transmission Partners double-circuit 500kV line proposed from the North Gila Substation in Yuma County, Arizona to the Imperial Valley Substation in Imperial County, proposed due east of the IV substation. Project would provide high voltage transmission capacity in the southwestern U.S. to facilitate the development and interconnection of renewable energy. The total ROW will be approximately 1,903 acres of BLM land. Project will be approximately 75 miles long.		Between North Gila Substation in Yuma County, Arizona and the Imperial Valley Substation in Imperial County between North Gila Substation in Yuma County, Arizona and the Imperial Valley Substation in Imperial Valley. Project will follow the same route as existing Southwest Powerlink 500 kV line.	STP is preparing a Plan of Development. NEPA analysis has not yet commenced.
8	Proposed Project—Centinela Solar Power, LLC (CACA-052092)	Proposed 230 kV line (follows the 230kV lines from the international border going north alignment) would generate 225-275 megawatts of electricity on 2,054 acres of previously disturbed private farmland in the Imperial Valley. Approximately 5 miles of new 230 kV transmission line. The line will connect solar farm on private land with the IV Substation.		Follows the 230 kV lines from the international border going north alignment. Approximately 10 to 12 miles southwest of the town of El Centro, Imperial County.	Draft plan for development dated November 2010. Currently working on CEQA/NEPA Analysis.
9	SDG&E East County (SDG&D ECO) Substation/Tule Wind/Energia Sierra Juarez-Gen-The Projects	The proposed ECO Substation Project will cross approximately 1.5 miles of land managed by BLM. The ECO Substation Project includes construction of a 500/230/138 kV substation in Eastern San Diego County; construction of the		The proposed ECO Substation, is situated approximately 0.5 mile north of the United States (U.S.)-Mexico border and 0.5 mile west of the Imperial County	The CPUC and the BLM developed and signed a Memorandum of Understanding (completed on December 14, 2009)

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		<p>Southwest Powerlink (SWPL) loopin, a short loopin of the existing SWPL transmission line to the proposed ECO Substation; construction of a 138 kV transmission line, approximately 13.3 miles in length, running between the proposed ECO Substation and the rebuilt Boulevard Substation; and rebuilding of the existing Boulevard Substation.</p>		<p>border in San Diego County, California.</p>	<p>that directed the preparation of a joint EIR/EIS. The Draft EIR/EIS was released for public review on December 24, 2010, for a 54-day public review period originally ending February 16,</p>
		<p>The proposed Tule Wind Project, consisting of up to 134 wind turbines in the 1.5 to 3.0-megawatt (MW) range generating up to 200 MW of electricity.</p>		<p>The proposed Tule Wind Project is located in the McCain Valley in southeastern San Diego County, California.</p>	<p>2011. However, the public review comment period of the Draft EIR/EIS has been extended to March 4,</p>
		<p>As proposed by Energia Sierra Juarez U.S. Transmission, LLC, the ESJ Gen-Tie Project would have the capacity to import up to 1,250 MW of renewable energy generated in northern Baja California, Mexico, to the existing SWPL Transmission Line in southeastern San Diego County, California. The selected route would interconnect with the proposed ECO Substation and would be constructed on three to five 150-foot lattice towers or 170-foot steel monopoles. Only renewable energy would be transmitted via the gen-tie line.</p>		<p>The ESJ Gen-Tie Project would extend south from the point of interconnection for about 0.5 mile to the U.S.–Mexico international border.</p>	<p>2011.</p>
<p>10</p>	<p>Dixieland Connection to HD Transmission System</p>	<p>Proposed 230 kV transmission line from the Dixieland Substation to the Imperial Valley Substation. Proposed route for the electrical transmission line is parallel to the proposed</p>		<p>Approximately 10 to 12 miles southwest of the City of El Centro, Imperial County.</p>	<p>Application filed and currently working on the NEPA analysis.</p>

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		Imperial Solar Energy Center West 230 kV transmission line. The proposed access/maintenance road for the transmission line is proposed to be shared for both transmission lines.			Draft plan of development was submitted on September 14, 2010.
11	Mount Signal Solar Farm I82LV 8ME, LLC (CACA-052325)	Proposed 230 kV line (follows the 230kv lines from the international border going north alignment) CACA-052325. The project would create 200 megawatts of electricity on 1,375 acres of private farmland in the Imperial Valley. Proposed transmission line route would parallel existing 230 kV lines and share transmission line with C Solar Imperial Valley Energy South project.		Located in 1,375 acres of privately owned land located 2.5 to 7.5 miles west of Calexico in southern Imperial County. Right-of-way is located within BLM lands.	Application filed and currently working on CEQA/NEPA Analysis. Draft plan for development dated October 12, 2010.
12	Superstition Solar 1	The Surperstition Solar 1 project is a photovoltaic solar energy facility capable of producing 500 megawatts of electricity on approximately 5,516 acres		Westmorland	Application filed and currently working on a Draft EIR/EIS.
13	Bethel Solar X, Inc.	The Bethel Solar X, Inc project is a solar-hybrid energy project that will produce approximately 49.40 megawatts of electricity on approximately 571 acres of land.		Calexico	In Process
14	Energy Source Solar I, LLC	The Energy Solar Source I project is a solar energy project that will produce 80 megawatts of electricity on approximately 480 acres of land.		Niland	Approved by Imperial County
15	Energy Source Solar II, LLC	The Energy Solar Source II project is a solar energy project that will produce 80 megawatts of electricity on 480 acres of land.		Niland	Approved by Imperial County

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
16	Salton Sea Solar Farm I	The Salton Sea Solar Farm I project is a solar energy project that will produce approximately 49.9 megawatts of electricity on approximately 320 acres of land.	Calipatria		County of Imperial just received.
17	Salton Sea Solar Farm II	The Salton Sea Solar Farm II project is a solar energy project that will produce approximately 100 megawatts of electricity on approximately 623 acres of land.	Calipatria		County of Imperial just received.
18	Calipat Solar Farm I	The Calipat Solar Farm I project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.	Calipatria		County of Imperial just received.
19	Calipat Solar Farm II	The Calipat Solar Farm II project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.	Calipatria		County of Imperial just received.
20	Midway Solar Farm I	The Midway Solar Farm I project is a solar photovoltaic project that will produce approximately 50 megawatts of electricity on approximately 326 acres of land.	Calipatria		County of Imperial just received.
21	Midway Solar Farm II	The Midway Solar Farm II project is a solar photovoltaic energy project that will produce approximately 155 megawatts of electricity on approximately 803 acres of land.	Calipatria		County of Imperial just received.
22	IV Solar Company	The IV Solar Company project is a solar photovoltaic energy project that will produce approximately 23 megawatts of electricity on approximately 123 acres of land.	Niland		Approved by Imperial County
23	Chocolate Mountain	The Chocolate Mountain is a solar photovoltaic energy project that will	Niland		Approved by Imperial County

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		produce approximately 49.9 megawatts of electricity on approximately 320 acres of land.			
24	Ocotillo Express	The Ocotillo Express project is wind energy project that will produce approximately 750 megawatts of electricity on approximately 15,000 acres of land.	Ocotillo		Application filed and currently working on a Draft EIR/EIS
25	Hudson Ranch II	The Hudson Ranch II project is a geothermal energy project that will produce approximately 49.9 megawatts of electricity on approximately 326.26 acres of land.	Niland		MND in Process
26	Black Rock Unit #1-2-3	Black Rock Unit # 1-2-3 project is a geothermal energy project that will produce approximately 159 megawatts of electricity on approximately 160 acres of land.	Niland		EIR in Process.
27	Ram/Power/Overlay	Ram Power Overlay is a geothermal energy project that will produce approximately 50 megawatts of electricity on approximately 27,875 acres of land.	Brawley		EIR in Process.
28	Orni-19	Orni-19 is a geothermal energy project that will produce approximately 49.9 megawatts of electricity on approximately 32 acres of land.	Brawley		EIR in Process.
29	Orni-21 (Wister)	Orni-21 is a geothermal energy project proposed to 49.9 mega-watts of geothermal power.	Brawley		TPM (minor subdivision); Variance (height of transmission poles connecting to plant); and CUP 080023 (to drill geothermal) filed with County of Imperial
Renewable Energy Projects on State and Private Lands (Source: Imperial Valley Solar Project FEIS)					

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
30	LADWP and OptiSolar Power Plant	This project is anticipated to generate 68 megawatts of solar energy.		Imperial County, SR-111	Under environmental review.
31	Orni 18, LLC Geothermal Power Plant	This would generate 49.9 megawatts of geothermal energy.		Brawley, Imperial County	
Existing Projects in Imperial Valley (Source: Imperial Valley Solar Project FEIS)					
32	U.S. Naval Air Facility El Centro	El Centro Naval Air Facility U.S. Naval Reservation Target 103 and Parachute Drop Zone. Desert range is used for air to ground bombing, rocket firing, strafing, dummy drops and mobile land target training.		West Mesa	Existing.
33	Recreation Activities	The area is primarily used for the conservation of Flat Tailed Horned Lizard. OHV activity is limited to designated routes of travel only within this area. There are occasional groups that visit this area for trail rides.		The area is primarily used for the conservation of Flat Tailed Horned Lizard. OHV activity is limited to designated routes of travel only within this area. There are occasional groups that visit this area for trail rides.	The area is primarily used for the conservation of Flat Tailed Horned Lizard. OHV activity is limited to designated routes of travel only within this area. There are occasional groups that visit this area for trail rides.
34	Recreation Activities	The area is primarily used for the conservation of Flat Tailed Horned Lizard, and archaeological resources. OHV activity is limited to designated routes of travel only within this area. The Juan Bautista De Anza National Historic Trail runs through this area. This region is also rich with paleontological and geological resources. Visitors come to this area to find fossils and explore the area's geology and enjoy the		Yuba Desert ACEC	Ongoing.

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		desert landscape. Some schools and universities have visited this region for educational field trips and research.			
35	U.S. Gypsum Mining	Existing gypsum plant; proposal to expand active gypsum quarry undergoing environmental review. Gypsum quarry is located 26 miles northwest of the plant located at Plaster City.	Plaster City		Existing; Quarry is undergoing expansion FEIR released Jan 2008.
36	California State Prison, Centinela	Existing prison opened in 1993 which covers 2,000 acres.	2302 Brown Road, Imperial, CA		Existing.
37	Recreation Activities	Cross-country OHV use is permitted within the boundaries of this area. Approximately 20 to 30 Permitted and Organized events occur on the Plaster City Open Area and Superstition Mountain Open Area. Many of these events are competitive OHV races involving as many as 100 riders and several hundred spectators. The area is a popular OHV riding area with high visitation during the cool season and on holiday weekends.	Superstition Mountain and Plaster City Open Area		Ongoing
38	IV Substation (TermoElectrica US, LLC, aka Sempra)	International Border and Department of Energy (DOE) was the NEPA lead for preparation of a joint EA. This involves a construction of a 230 kv transmission line from the IV substation to the international U.S./Mexico border. Requires Presidential Permit for border crossing.	From the IV Substation to the international U.S./Mexico border.		Existing. Construction of the two natural gas fired power plants in Mexico started in 2001 and are complete. The Imperial Mexicali FEIS was prepared in December 2004.
39	IV Substation (Baja California Power, Inc., aka, Intergen)	International Border and DOE were the NEPA lead for preparation of a joint EA. Involves construction of a 230 kv transmission line from the IV Substation to	From the IV Substation to the international U.S./Mexico border.		Existing. Construction of the two natural gas fired power plants in Mexico started in 2001

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		the international U.S./Mexico border. Requires Presidential Permit for border crossing.			and are complete. The Imperial Mexicali FEIS was prepared in December 2004.
40	IV Substation (SDG&E)	Involves construction of the La Rosita 230-kv transmission line from the IV Substation to the international U.S./Mexico border near Mt. Signal. 230-kv transmission line (IV-La Rosita line) that connects the IV Substation with Mexico's La Rosita Substation.	La Rosita Substation near the Mexicali border.	Existing. Constructed in 1983.	
Future Foreseeable Projects in Imperial Valley (Source: Imperial Valley Solar Project FEIS)					
41	Las Aldeas Specific Plan	The Las Aldeas Specific Plan project is a mixed-use project of 2,156 single-family residential units, 84 multifamily residential units, 467 4-plex residential units, 27.95 acres of commercial zoning, 10.79 acres of light manufacturing zoning, 21.78 acres of park, 48.18 acres of retention basin, and 23.09 acres for two school sites.	North of Adams Avenue, east of Austin Road and west of La Brucheri Road	City of El Centro working on staff report and condition of approval.	
42	Linda Vista	The Linda Vista project is a mixed-use project consisting of 182 single-family homes and a 6-acre commercial lot.	West side of Clark Road and I-8 and McCabe Road	Still in permitting process	
43	Desert Village #6	The Desert Village Project #6 consists of 95 single-family homes, 260 apartments, and 7.3 acres of commercial.	West of Clark Road between I-8 and Home Road	Approved-granted extension of 2 years for filing final map of subdivision (Aug. 2008)	
44	Commons	The Commons is a regional shopping center of 780,000 square feet.	East side of Dogwood Avenue between I-8 and Danenberg Drive	Approved. Issued a building permit.	
45	Imperial Valley Mall	The Imperial Valley Mall consists of a regional shopping center of 1,460,000	Southeast corner of Dogwood Road and	Completed	

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		square feet and 306 single family houses.		Danenberg Road	
46	Miller-Burson	The Miller-Burson project consists of a 570 singlefamily residential project.		South of Ross Road and east of Austin Road	Responses to Draft EIR under preparation.
47	Courtyard Villas	The Courtyard Villas is a project consisting of 54 single family homes.		Northwest of I-8 and Austin Road	EIR in Process.
48	Willow Bend (East) & Willow Bend (West)	The Willow Bend (East) and Willow Bend (West) is a combined project of 216 single family homes.		Northeast corner of Clark Road and McCabe Road	On hold
49	Lotus Ranch	The Lotus Ranch project is a residential project of 616 single family homes and a 600 student elementary school.		Southwest corner of I-8 and La Brucheri Road.	On hold per applicant request (June 2008).
50	Mosaic	The Mosaic project is a residential project of 1,156 single family units and 2.7 acres of commercial.		Located in the County of Imperial. South of SR-86 and bisected by Dogwood Ranch	EIR in Process.
51	Hallwood/Calexico Place 111 & Casino	The Callexico Place 111 and Casino project is a mixed use project of residential, commercial, and casino.		Southwest corner of SR-111 and Jasper Road	Approved.
52	Calexico Mega Park	The Callexico Mega Park project is a mixed-use project of a commercial and regional shopping center.		Southeast corner of SR-111 and Jasper Road	
53	County Center II Expansion	The County Center II Expansion project is a mixed use project of a commercial center, expansion of the Imperial County Office of Education, a Jointuse Teacher Training and Conference Center, Judicial Center, County Park, Jail Expansion, County Administrative Complex, Public Works Administration, and a County Administration Complex.		Southwest corner of McCabe Road and Clark Road (8th Street in the City of El Centro)	EIR in Process.
54	Desert Springs Resort	The Desert Springs Resort project is a member's only resort community for motorsports, water sports, and recreational		Northwest of the Boley Road and Westmorland Road	EIR in Process.

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
		vehicle (RV) enthusiasts with a maximum occupancy of 210 days per year. The resort includes an estimated total of up to 411 water sports lots, 792 recreational vehicle lots, 22 estate lots, 150 vacation villas, and 100 garage villas for a total of up to 1,475 units. The project proposes the following: four lakes for water sport recreational uses; a navigable waterway; clubhouse with a restaurant, pool, tennis courts, and boat docks; a spa; satellite recreation facilities; marinas on the water sports lakes; an executive golf course; and passive open space.			
55	Coyote Wells (Wind Zero)	The Coyote Wells (Wind Zero) project is a mixed-use, three-phase development on approximately 944 acres. The land uses include recreation, education and training, tourism, residential, storage, and hotel/resort. Wind Zero proposes to build a 400-acre training facility for law enforcement, government, college and public near Ocotillo (south of Interstate 8 and north of SR 98) on land that it purchased in 2007. Wind Zero proposes to use the additional 600-acre site to build a 6.1-mile road course and racetrack country club.	Ocotillo/Nomirage Area	Approved	
56	Granite Carroll Sand and Gravel Mine	The Granite Carroll Sand and Gravel Mine is a mining operation project.	4 miles northwest of Ocotillo	Approved.	
57	Atlas Storage Facility	RV storage facility related to new water well on 5.3-acre parcel currently vacant	Ocotillo townsite/Imperial Highway	Atlas Storage Centers.	

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
58	Mixed-Use Development	land- 65 single-family lots on over 36 acres.		Southeast corner of 8th Street (Clark Road) about 630 feet south of Horne Road	MND proposal being reviewed by applicant.
59	Mixed-Use Development	15 parcel subdivision on APN 054-280-024 and 054-280-048		1002 East Evan Hewes Highway	Approved by City of El Centro March 2008.
60	Pedestrian Fence 225 and Pedestrian Fence 70	Construct a tactical infrastructure project that plans to construct approximately 225 miles of primary pedestrian fencing along the southwest border of the United States.		Along the U.S./Mexico Border	Under construction.
61	Mixed-Use-Recreation	Cross-country OHV use is permitted within the boundaries of Plaster City Open Area and Superstition Mountain Open Area. Limited Use area is allowed in Yuha which offers washes and trails. Organized and permitted OHV events occur at both Plaster City Open Area and Superstition Mountain Open Area.		Plaster City Open Area; Yuha; Superstition Mountain Open Area	The recreational use of the open areas, especially OHV use, is expected to continue and potentially grow in the foreseeable future.
62	Seeley Wastewater Treatment Plant Upgrade	The IVS project applicant would finance an upgrade to the existing facility to allow it to meet the Title 22 water quality standards.		New River Boulevard, Seeley, California Seeley County Water District	Engineering plans required, completion of project expected March 2010.
63	Cahuilla Gold Project	Consolidated Goldfields Company proposes to operate a geotechnical drilling operation (200 holes) on both tribal and private lands, west of Townsite of Salton Sea Beach.		West of Townsite of Salton Sea Beach	CUP-10-0038 Nov 2010, Initial Study impacts to birds during breeding season and Peninsular Bighorn Sheep (mitigated). Cultural impacts mitigated with delineation where

4. Environmental Consequences

<u>ID</u>	<u>Project Name/Agency ID</u>	<u>Location</u>	<u>Ownership</u>	<u>Status</u>	<u>Project Description</u>
					<p>fossils exist, cease drilling if fossils are found, avoidance of identified archeological sites, and cessation of construction if human remains are found. Hydro placement within a 100-year flood hazard (mitigated with construction buffer and SWPPP).</p> <p>ECC scheduled / PC Scheduled.</p>

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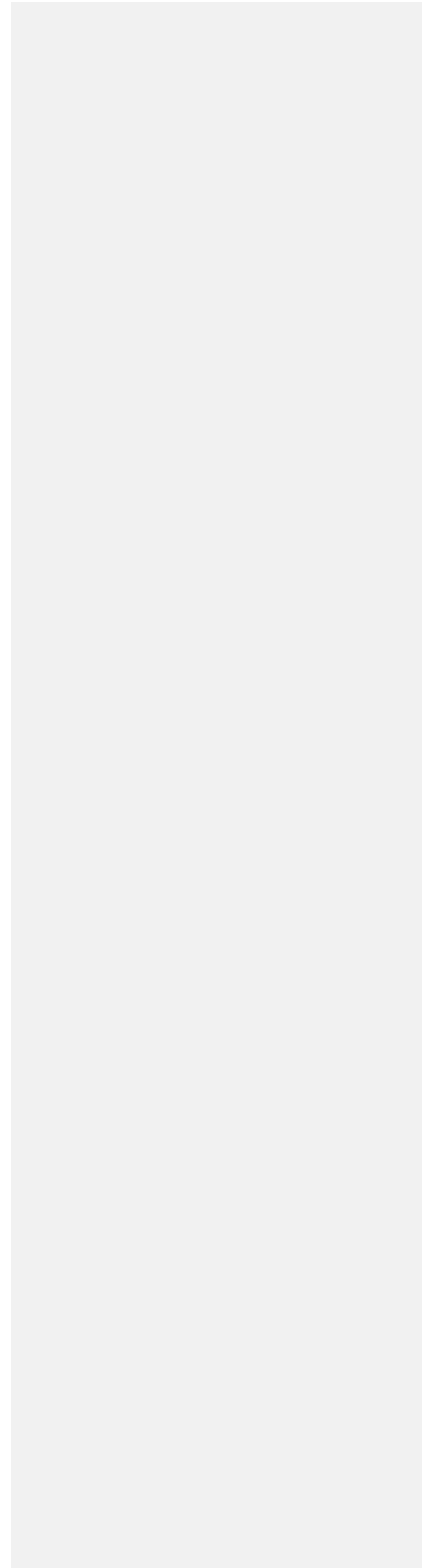
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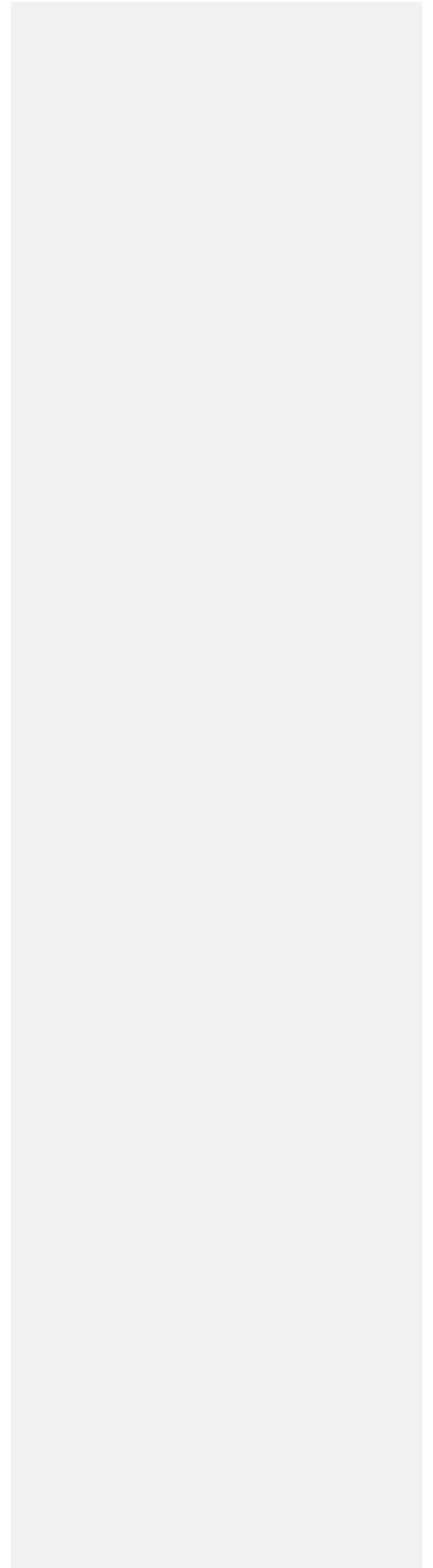
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ATTACHMENTS

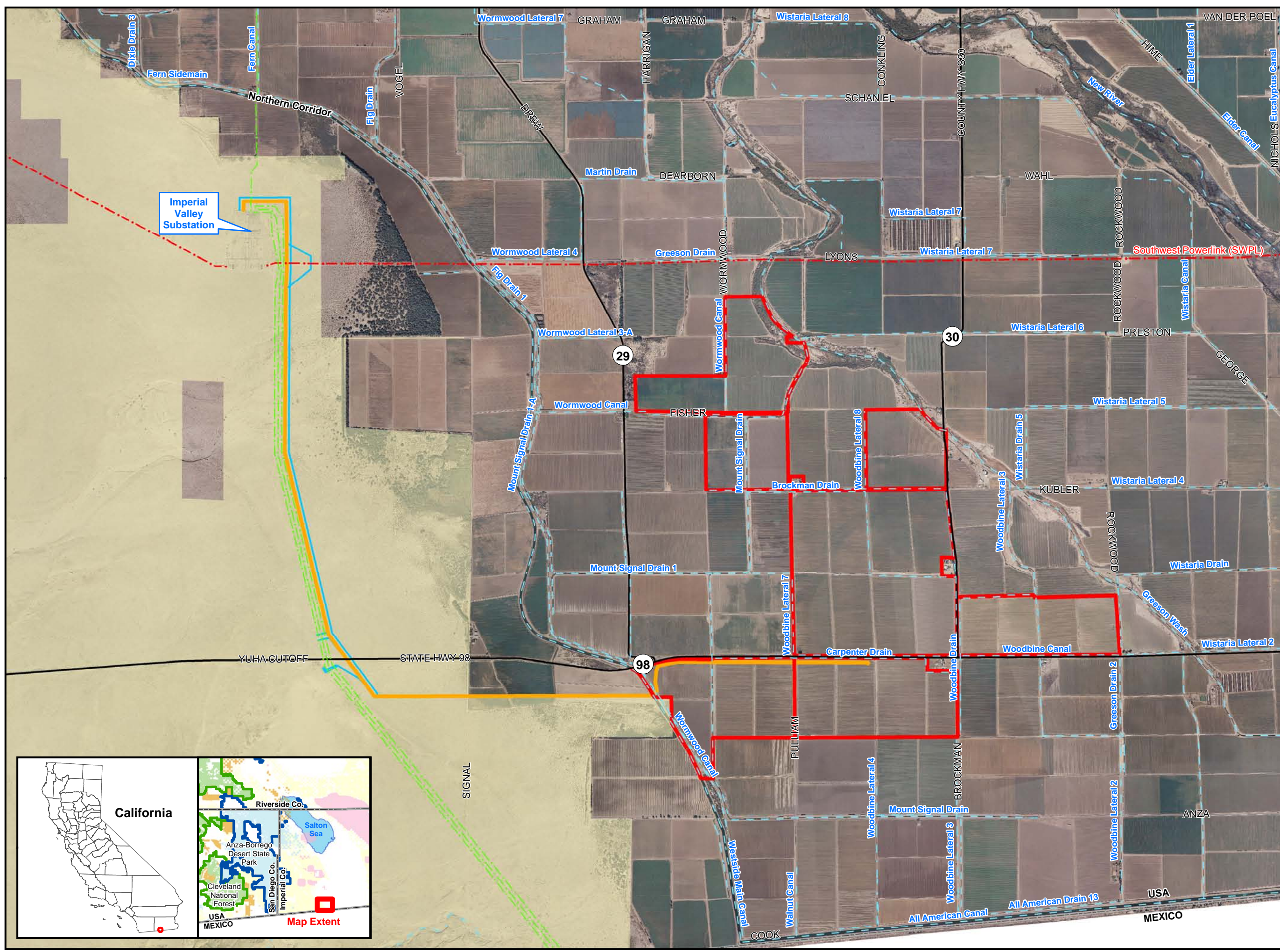


ATTACHMENT 1 - FIGURES



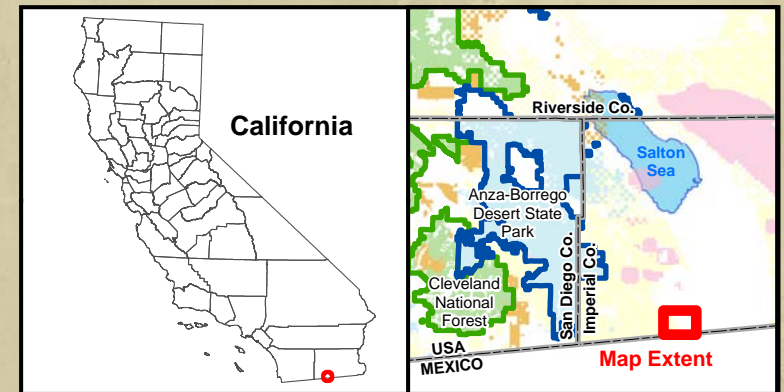
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Figure 1 Project Location



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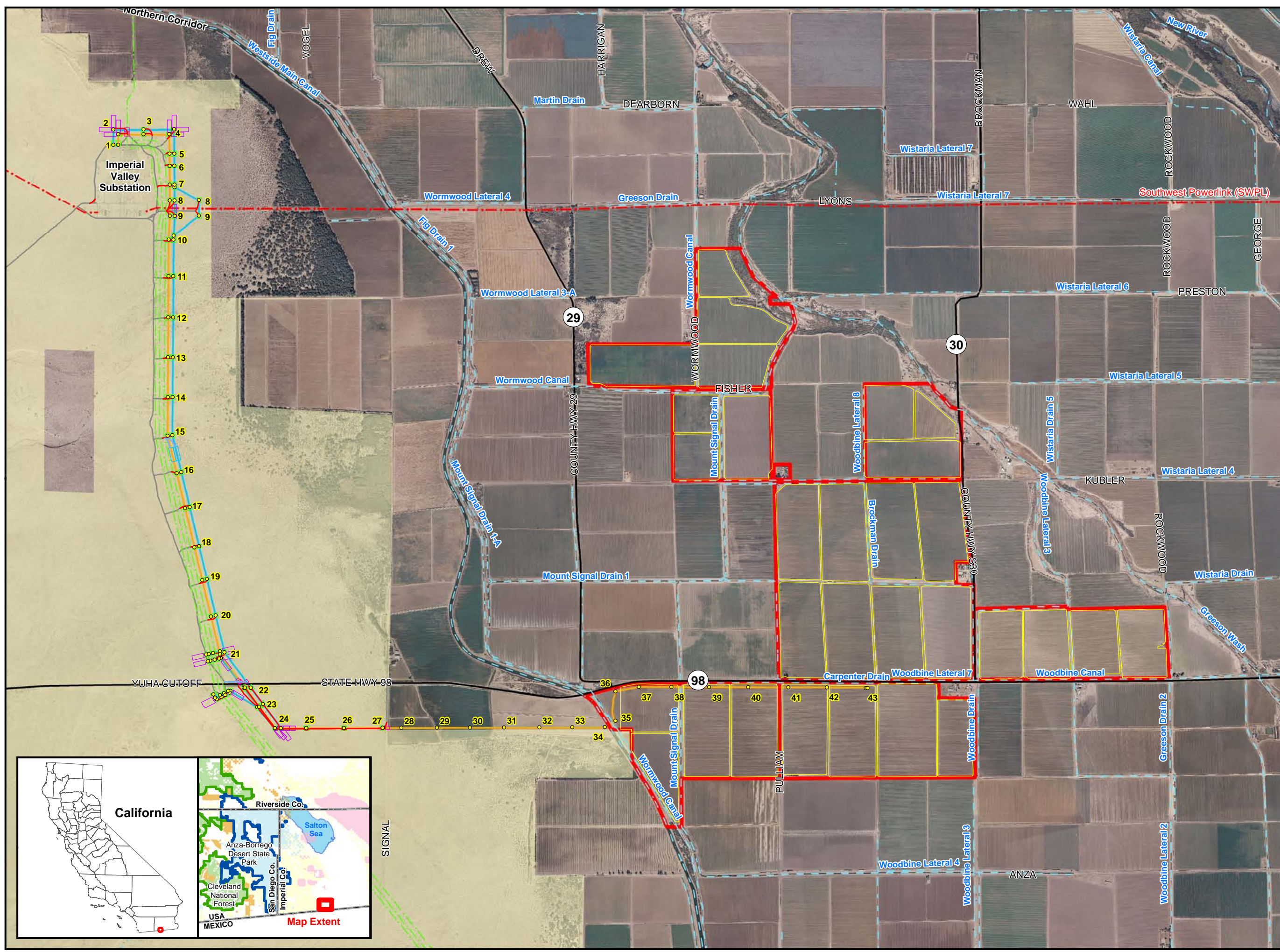
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 - - - Existing 230 kV Transmission Line
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 - Alternative Gen-tie Line Route
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 - - - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

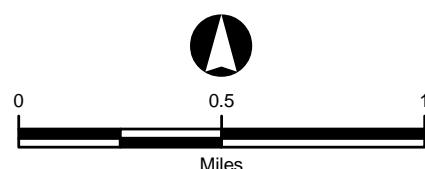
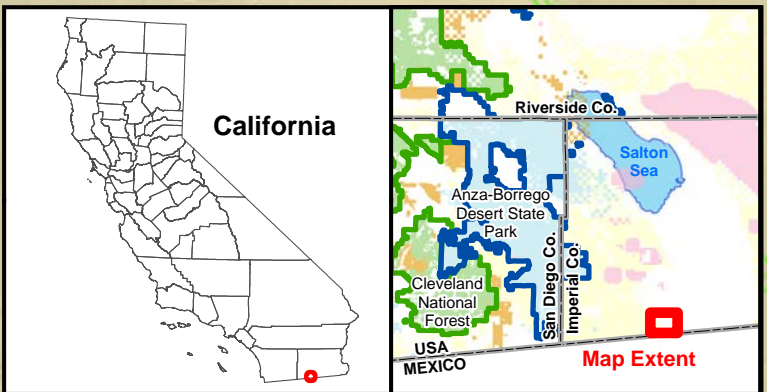
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Figure 2 Proposed Action and Alternatives



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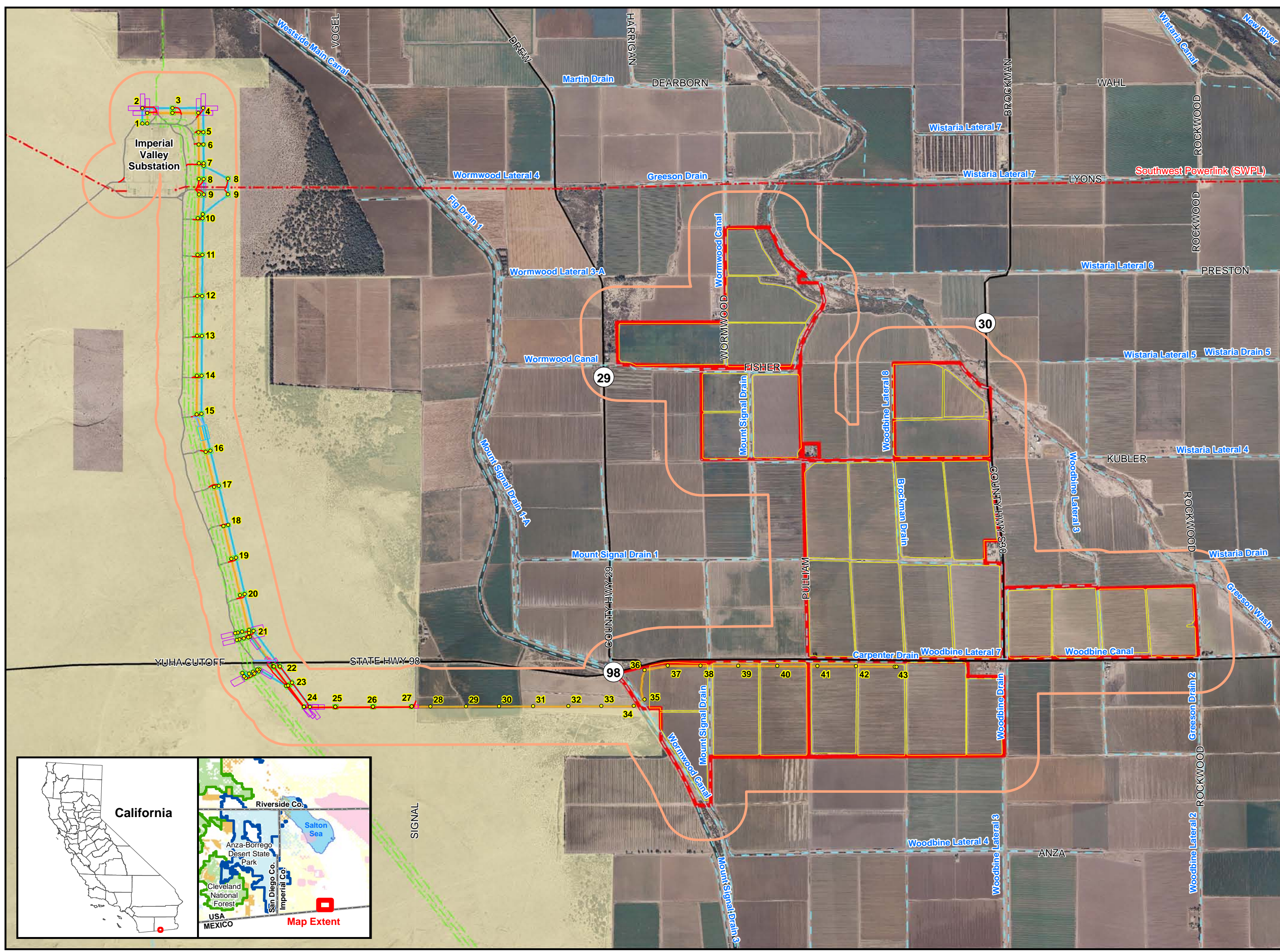
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 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

Centinela

Figure 3 Study Area



Legend

- Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
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 - Indian Land

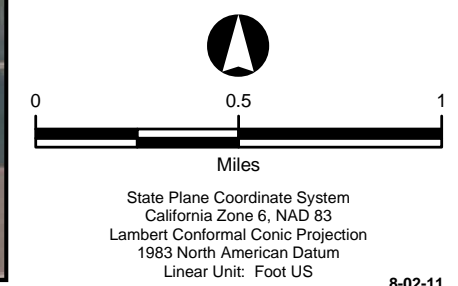
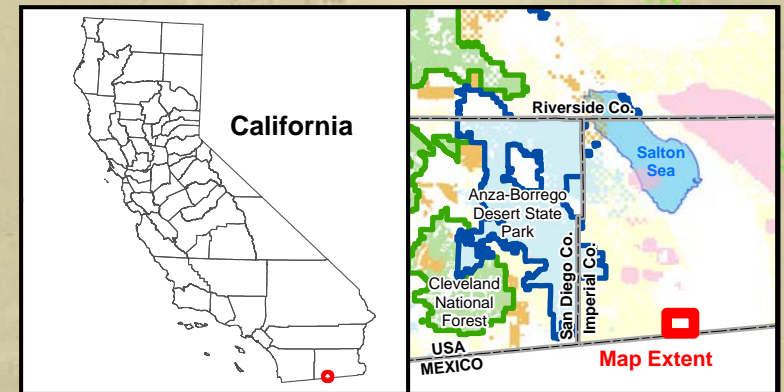
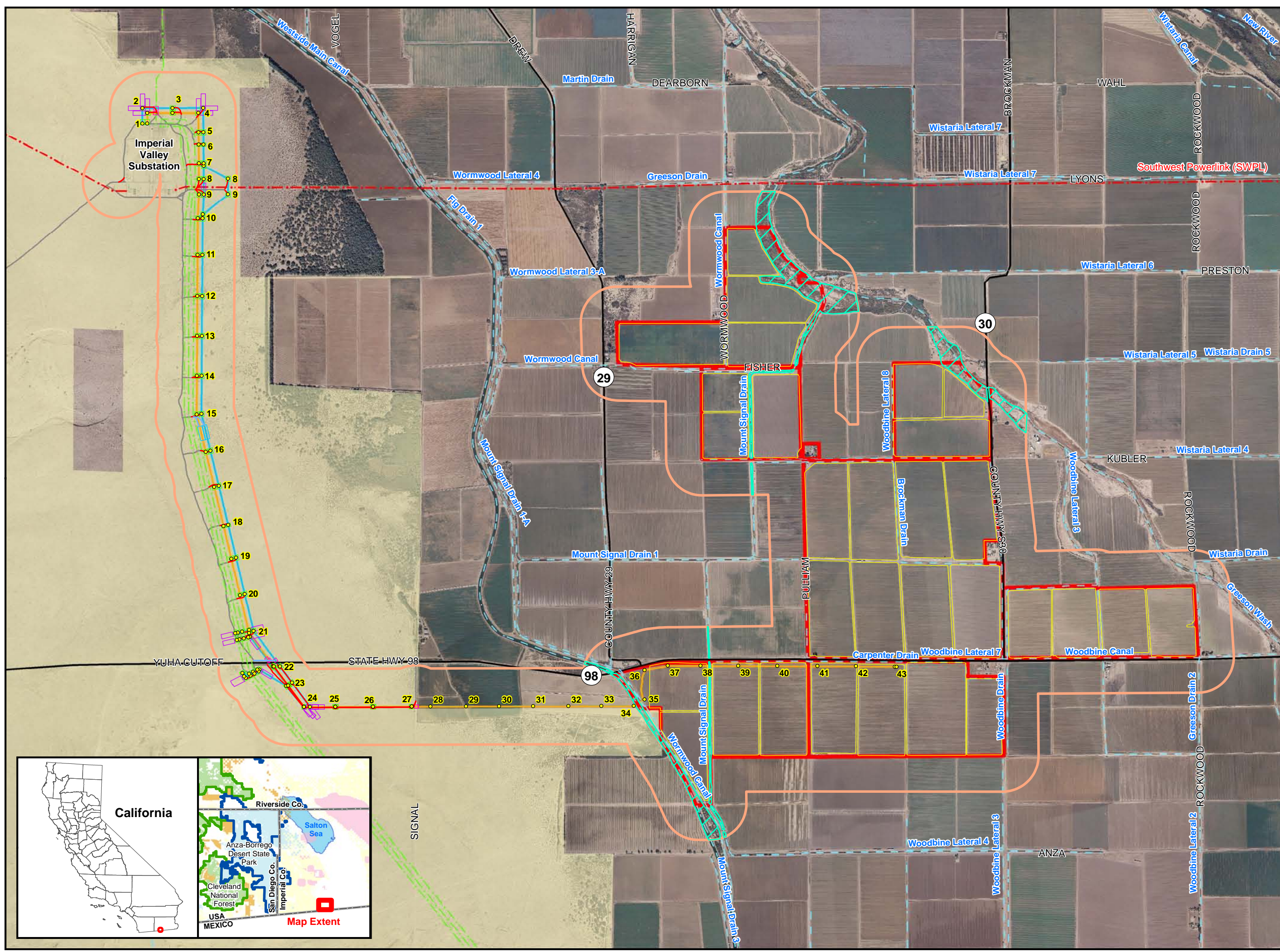
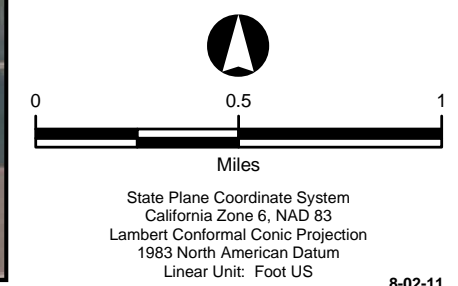
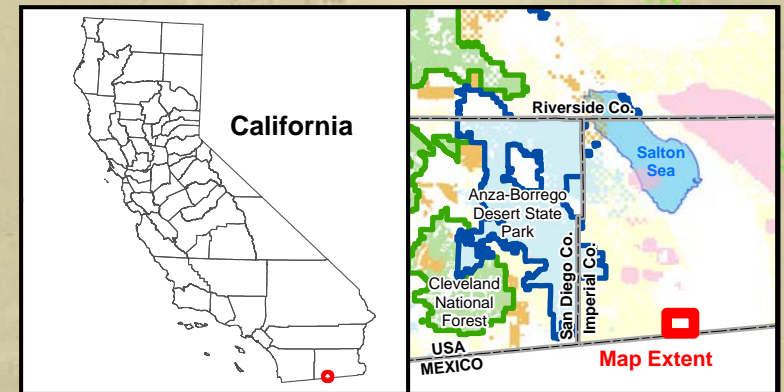


Figure 4
Potential SWFL
Migratory Habitat



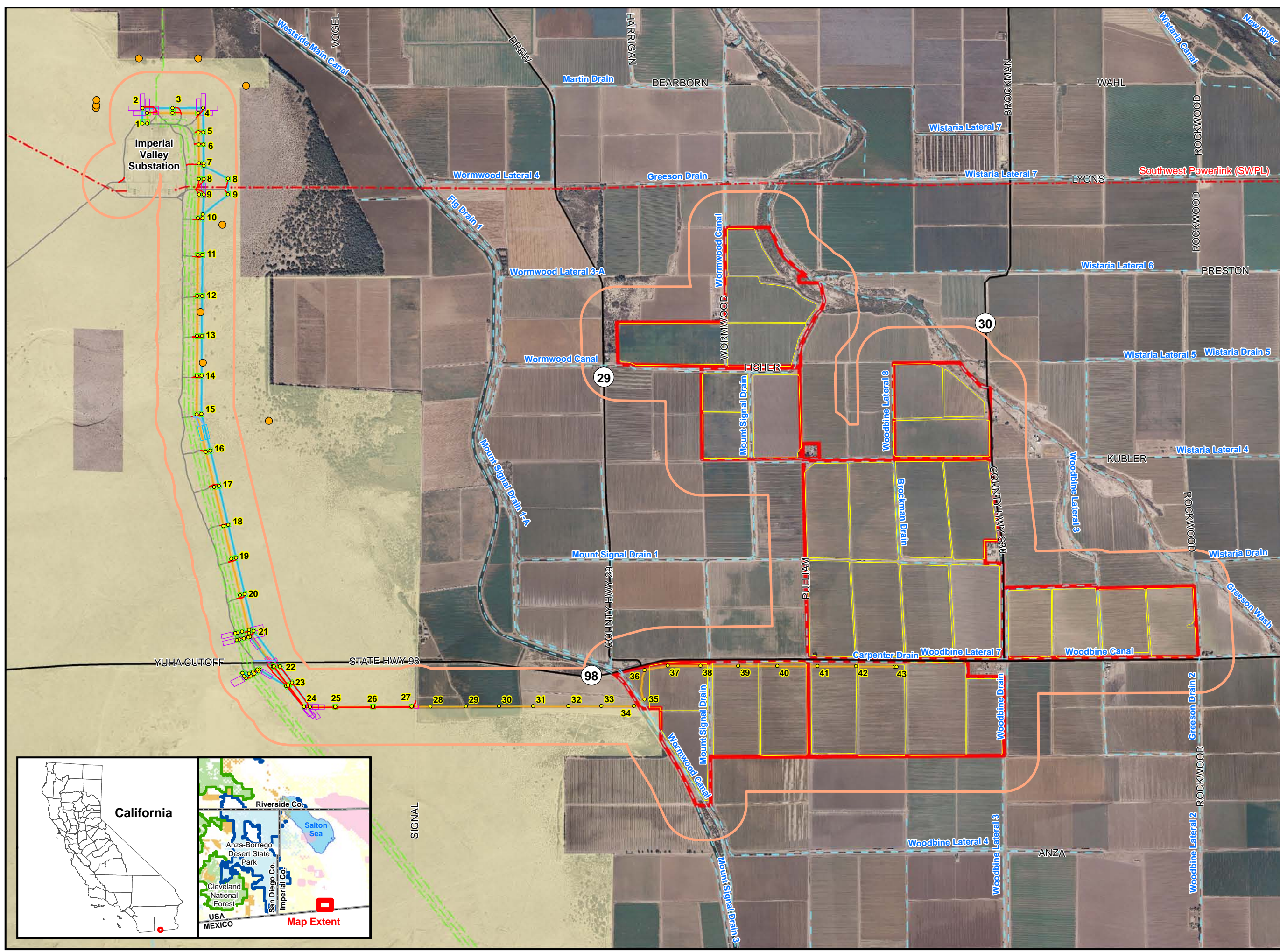
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 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
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 - Major Road
 - Existing Access Road
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 - County Boundary
 - Potential SWFL Migratory Habitat
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
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 - Major Water Body
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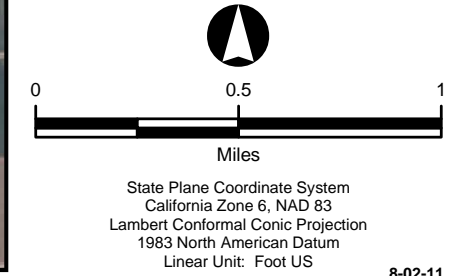
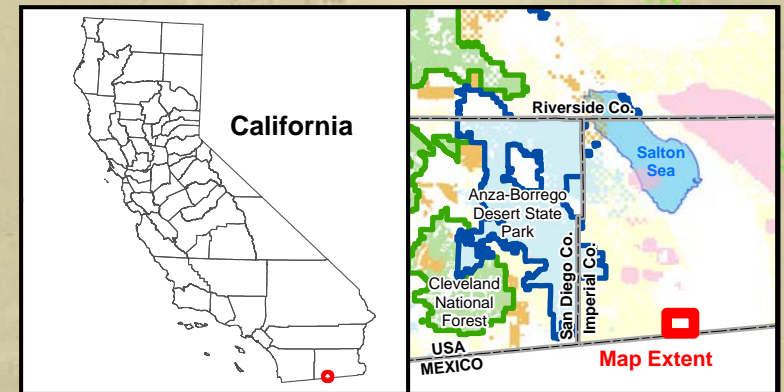
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Figure 5 Flat-tailed Horned Lizard Occurrences



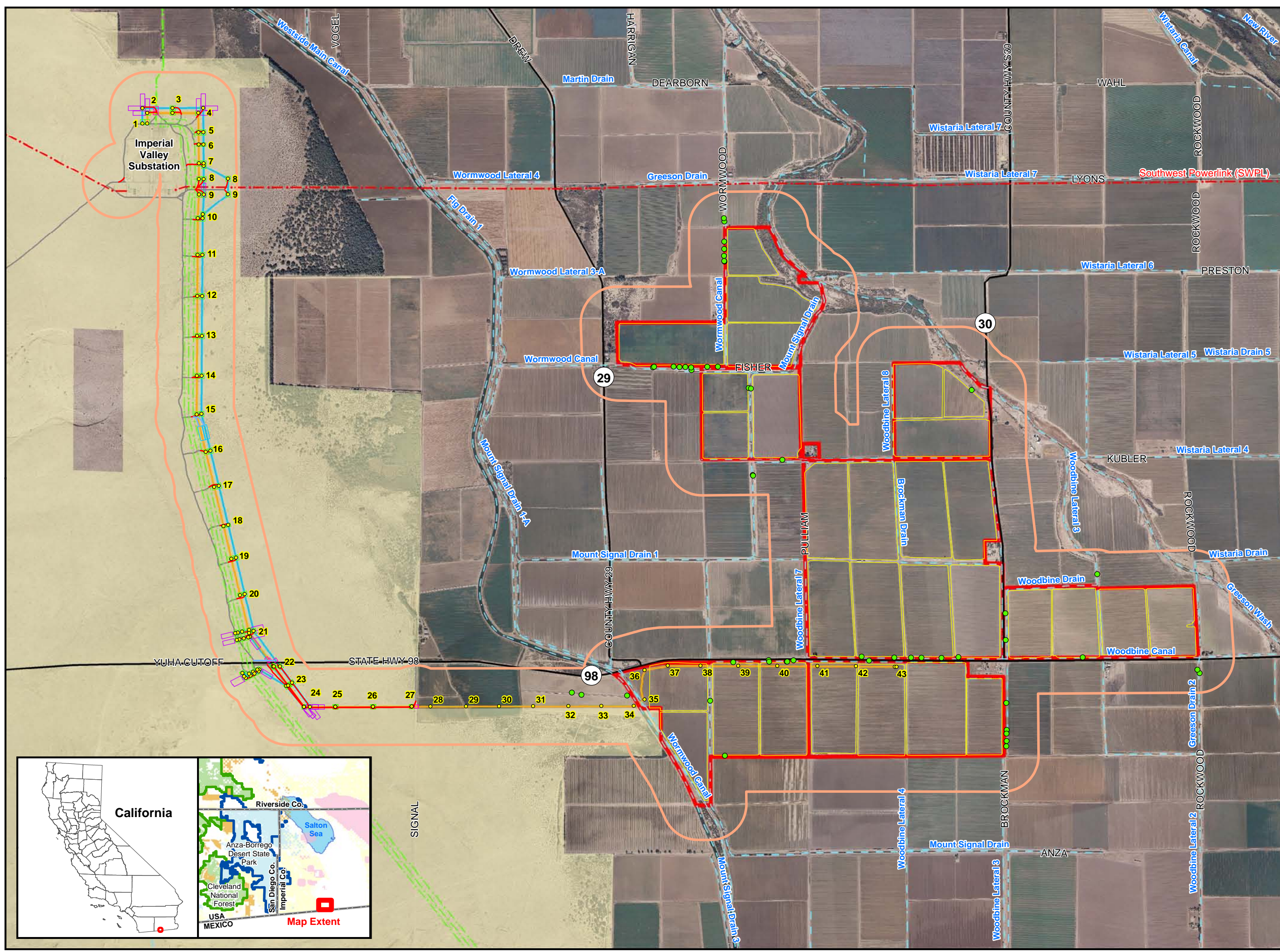
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- Flat-tailed Horned Lizard Occurrence
 - Structure
 - Existing 500 kV Transmission Line
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 - State Land
 - Indian Land



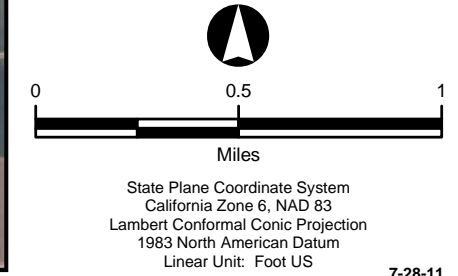
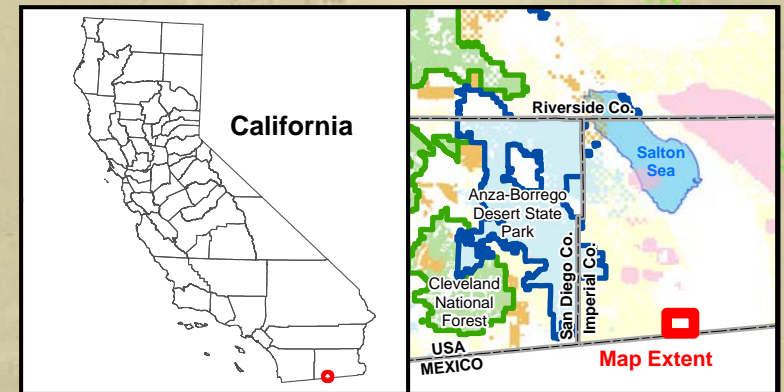
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Figure 6 Burrowing Owl Occurrences



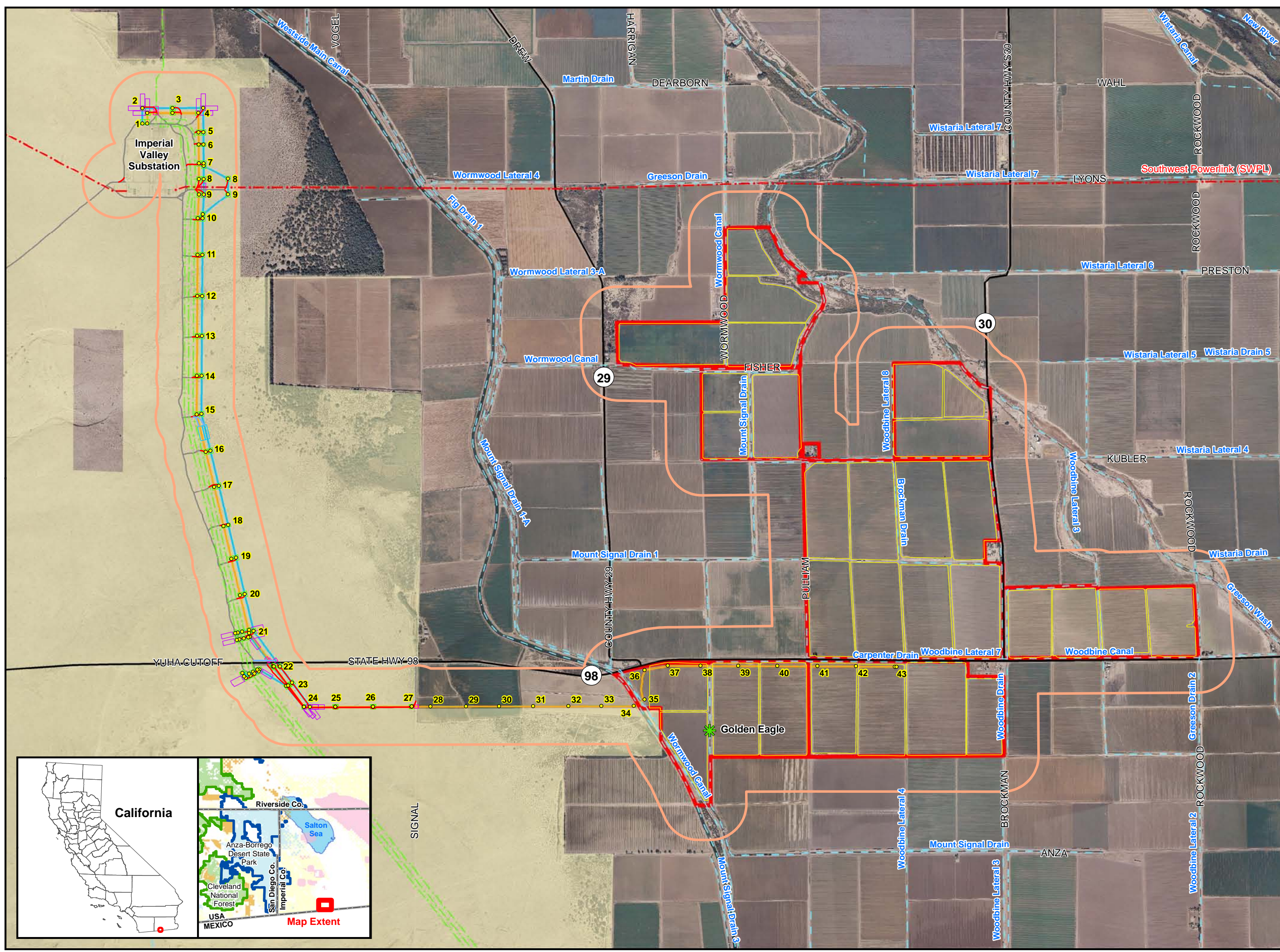
Legend

- Active Burrow within CSE Study Area
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
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- Jurisdictional Land Ownership**
- Bureau of Land Management Land
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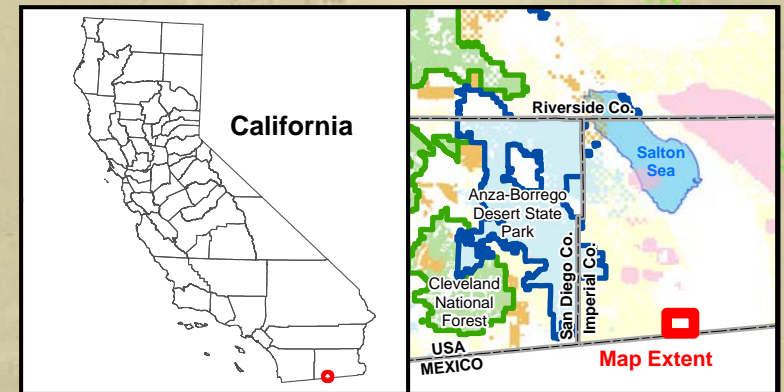
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Figure 7 Golden Eagle Occurrence



Legend

- Golden Eagle Occurrence
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
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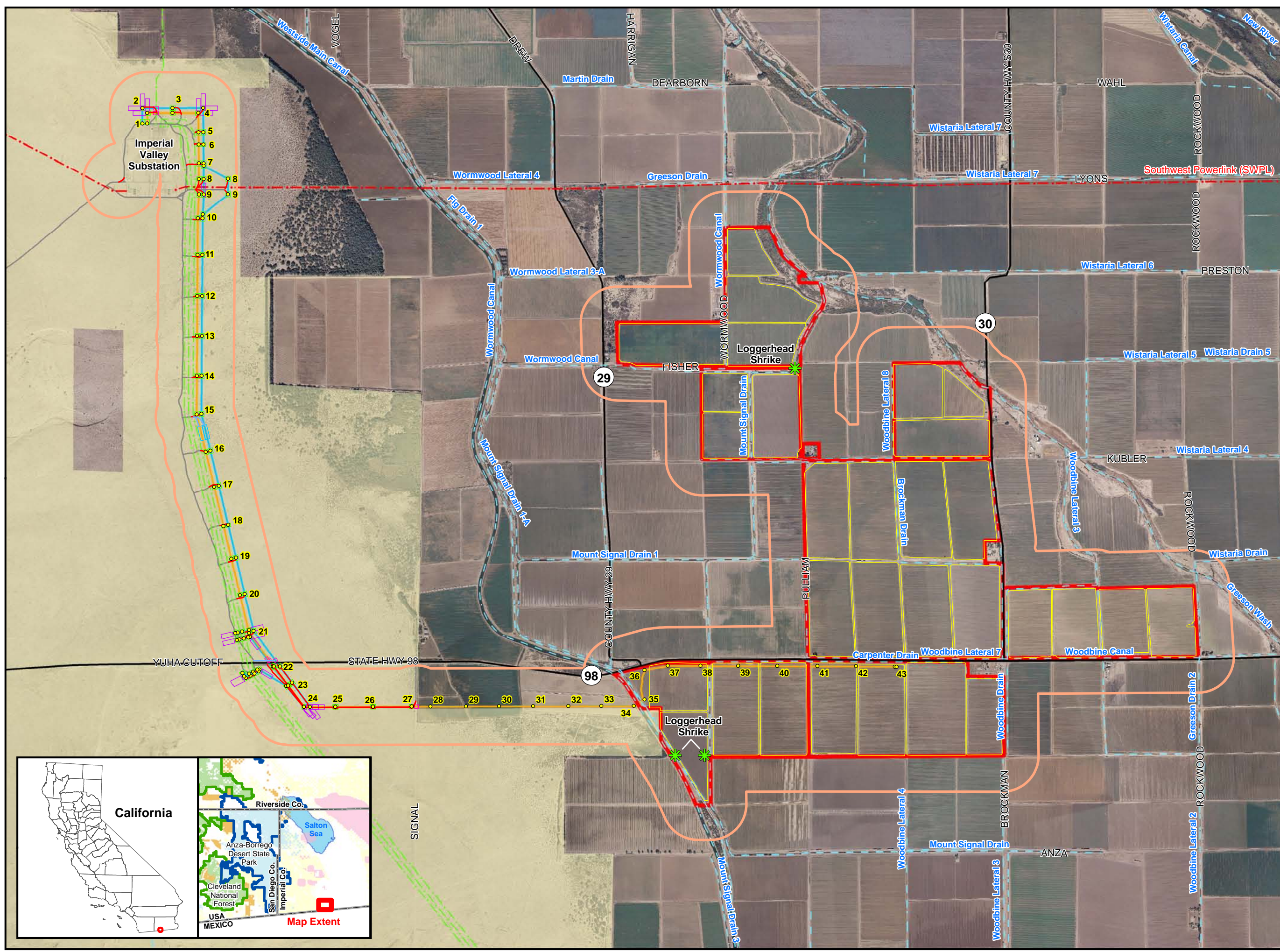
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State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

8-02-11

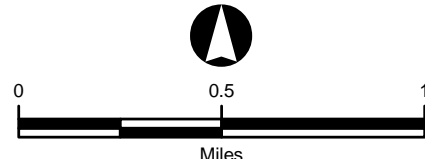
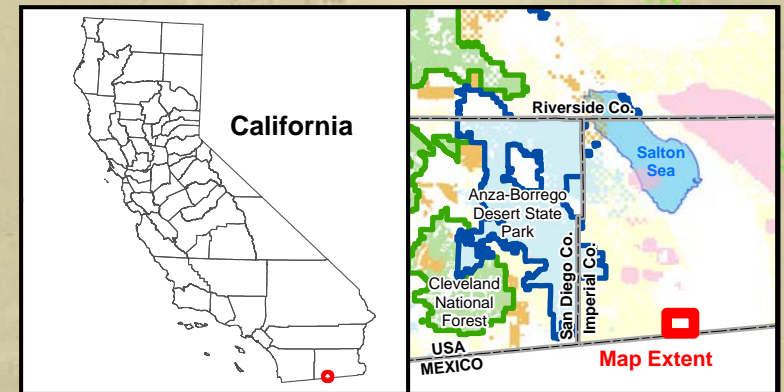
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Figure 8 Loggerhead Shrike Occurrences



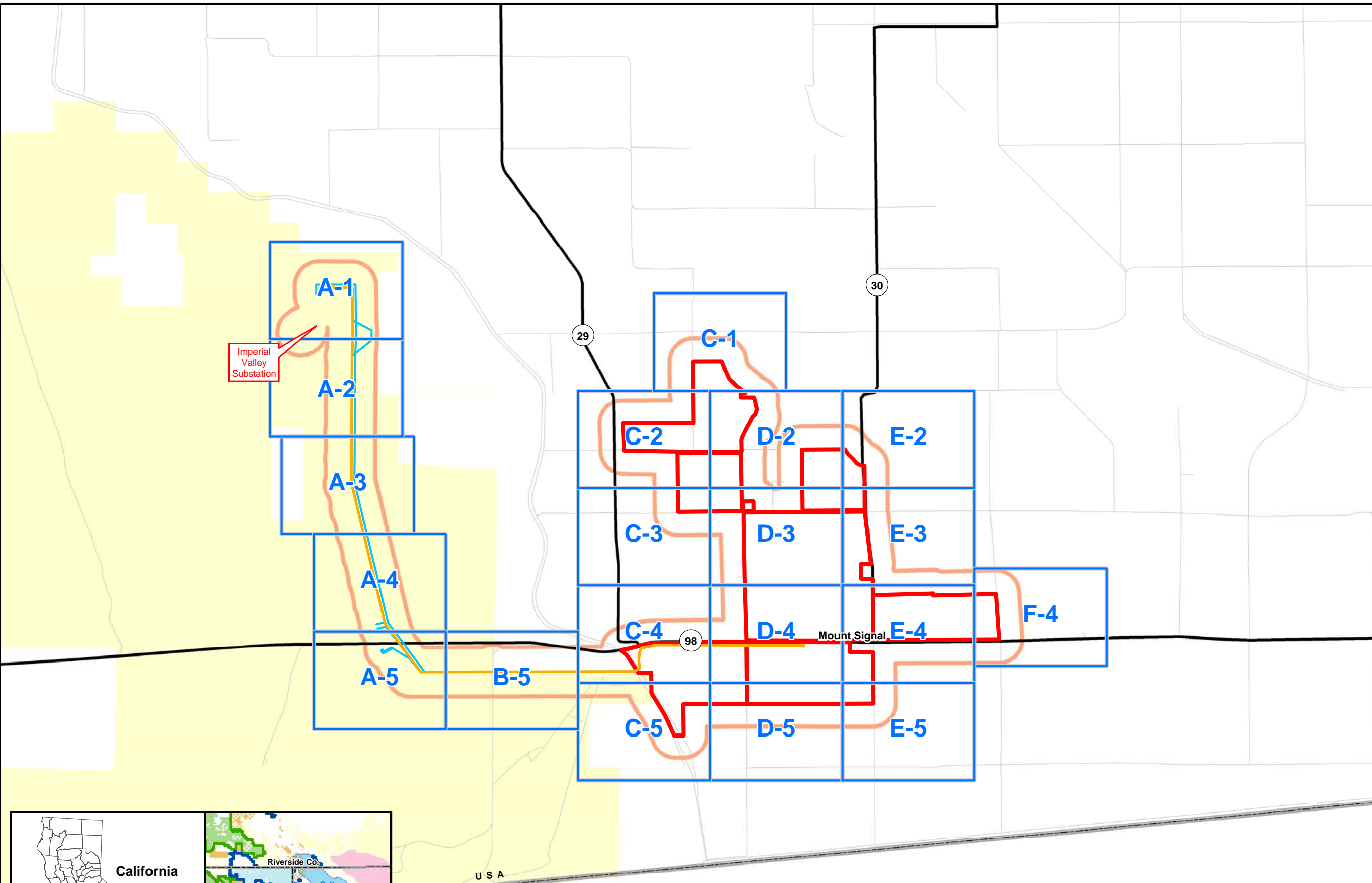
Legend

- Loggerhead Shrike Occurrence
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
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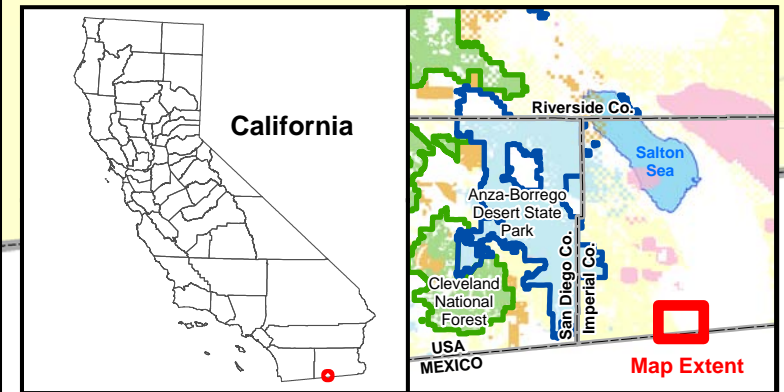


State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

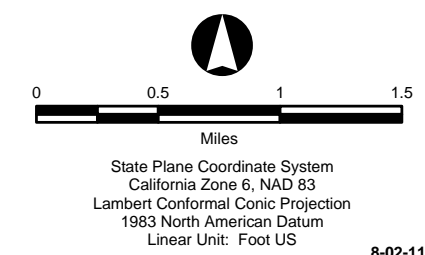
MAP SHEET INDEX



- Gen-tie Line Route
- Alternative Gen-tie Line Route
- Major Road
- Road
- International Boundary
- Map Sheet Boundary
- CSE Facility
- CSE Action Area
- Major Water Body
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Centinela Vegetation Mapbook


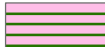

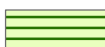

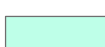

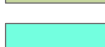
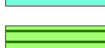


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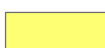
Vegetation Legend

Vegetation Communities



Desert Scrub

-  Big Salt Bush - Bush Seepweed Scrub (SBSS)
-  Big Salt Bush Scrub - Disturbed (BSS-D)
-  Creosote Bush – White Bursage Scrub (CBS)
-  Creosote Bush – White Bursage Scrub - Disturbed (CBS-D)
-  Creosote Bush – White Bursage Scrub / Alkali Depressions (CBS/AD)
-  Desert Pavement (DP)
-  Goldenbush scrub (GS)
-  Mesquite - Catclaw Scrub (MCCS)
-  White Bursage Scrub - Disturbed (WBS-D)

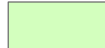

Desert Wash Scrub

-  Encelia – White Bursage Wash Scrub (EWBS)
-  Ephedra – Encelia Wash Scrub (EEWS)
-  Mesquite Bosque (MB)
-  Smoke Tree Wash Scrub (STWS)


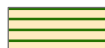
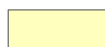
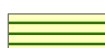


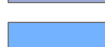

Native Woodland

-  Mesquite Woodland (some possibly planted) (MW)
-  Palo Verde Woodland (possibly planted) (PVW)

Non-Native Communities

-  Agriculture (AG)
-  Developed or Disturbed Habitat (Dev or DH)

Riparian and Wetland

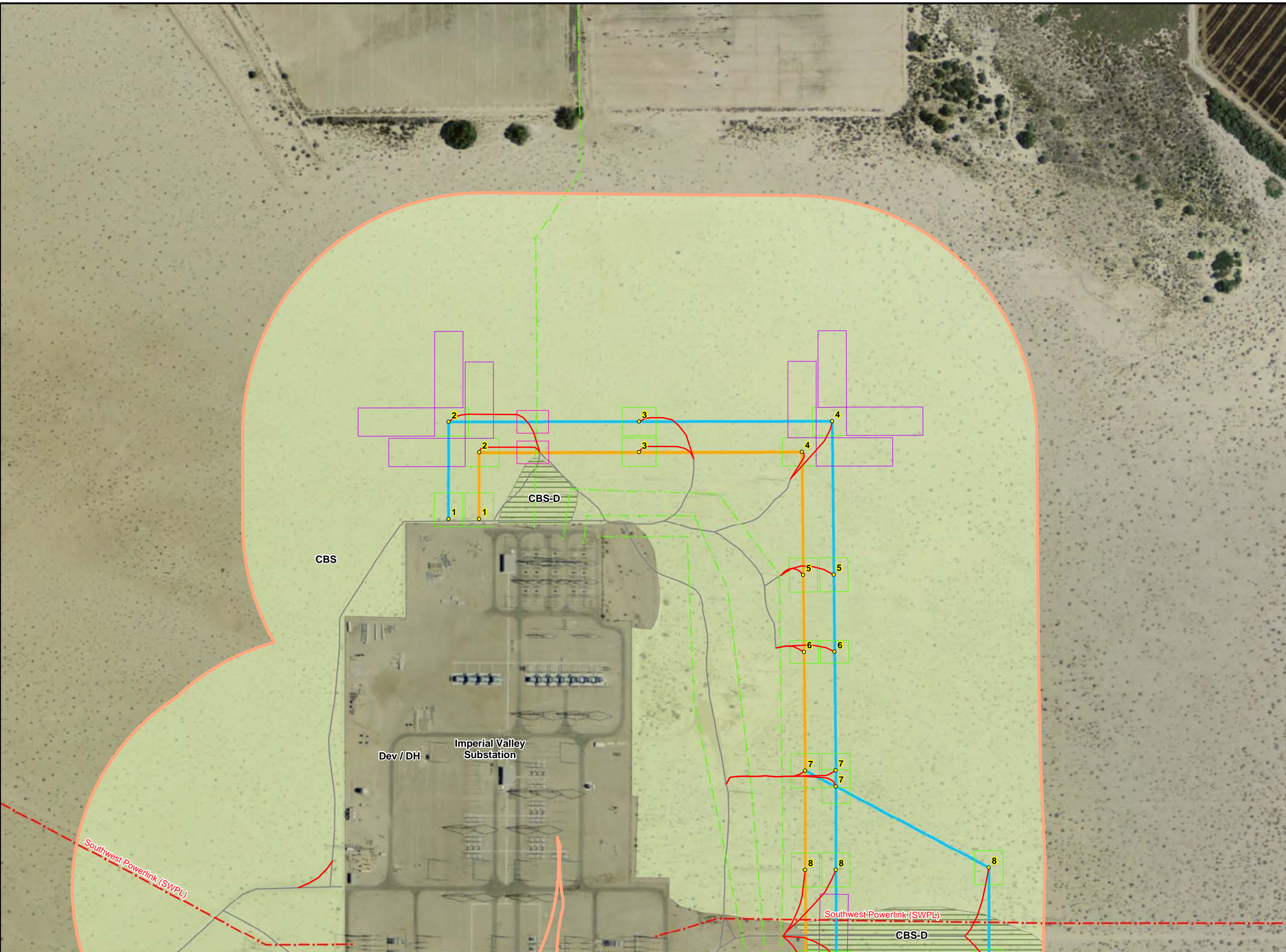
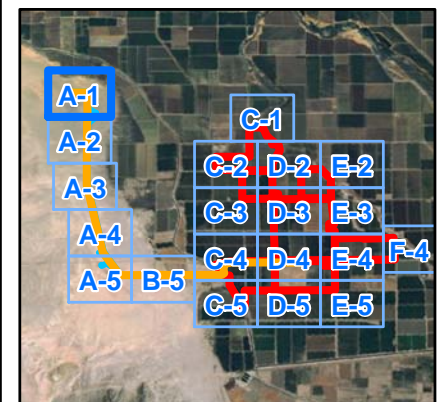
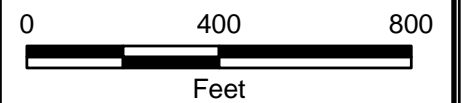
-  Arrow Weed Scrub (AS)
-  Arrow Weed Scrub - Disturbed (AS-D)
-  Arrow Weed Scrub / Tamarisk Scrub (AS/TS)
-  Arrow Weed Scrub / Tamarisk Scrub - Disturbed (AS/TS-D)
-  Disturbed Wetland (DW)
-  Non-Vegetated Sandy Wash (NVSW)
-  Open Water (OW)
-  Tamarisk Scrub (TS)
-  Tamarisk Scrub - Disturbed (TS-D)

Centinela

Vegetation

Legend



















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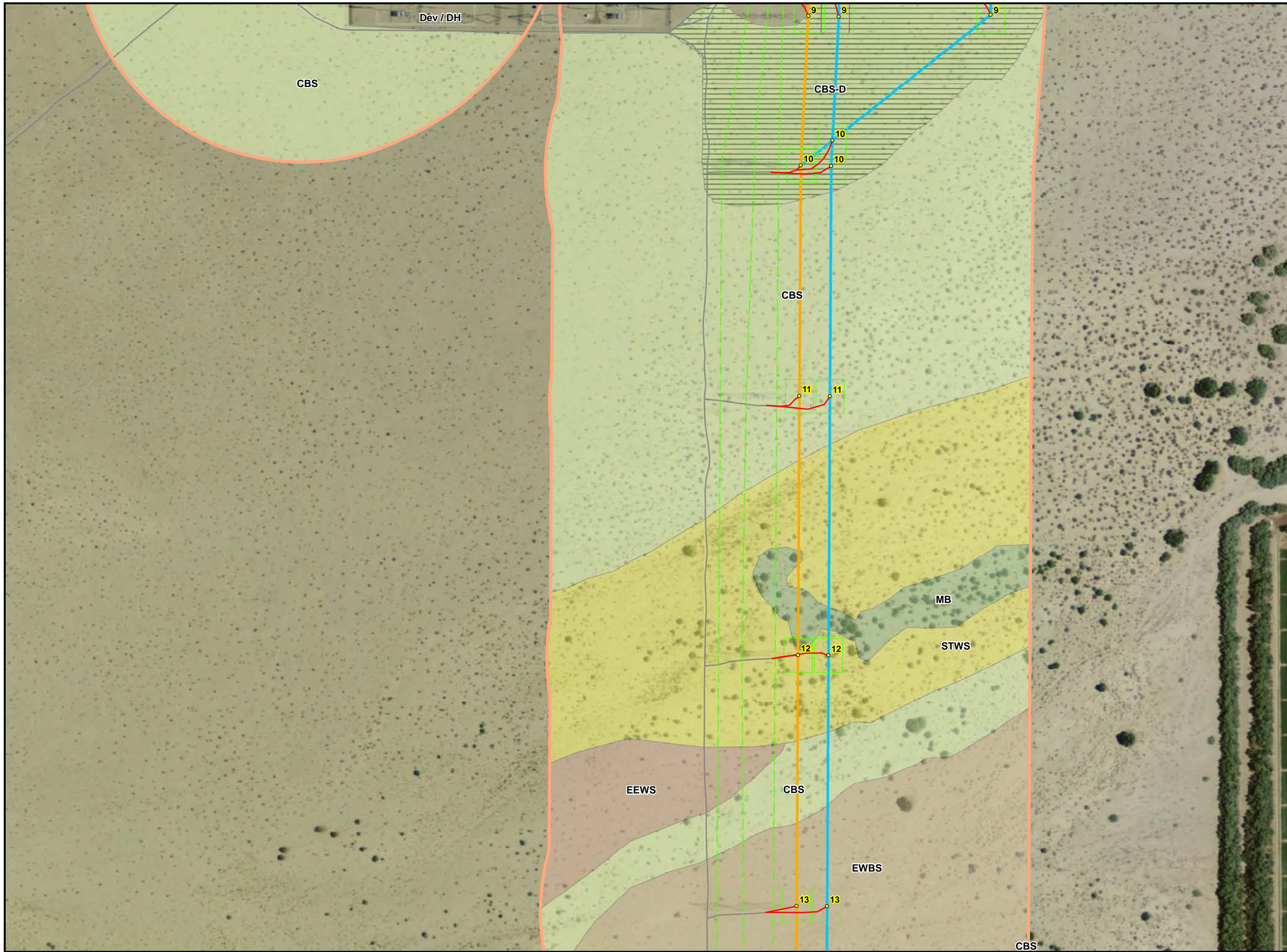
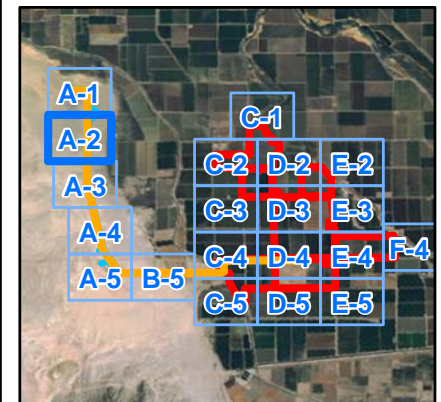
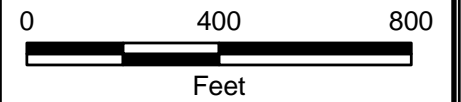


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Vegetation

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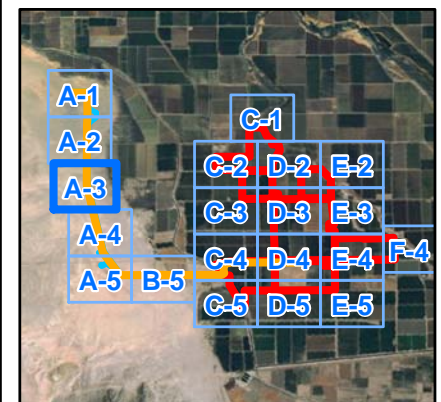
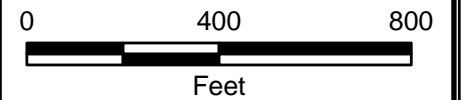


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Vegetation

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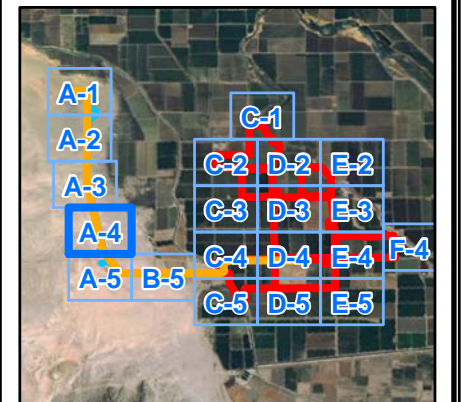
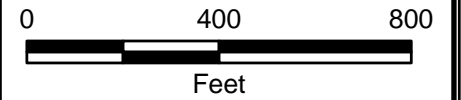


Centinela

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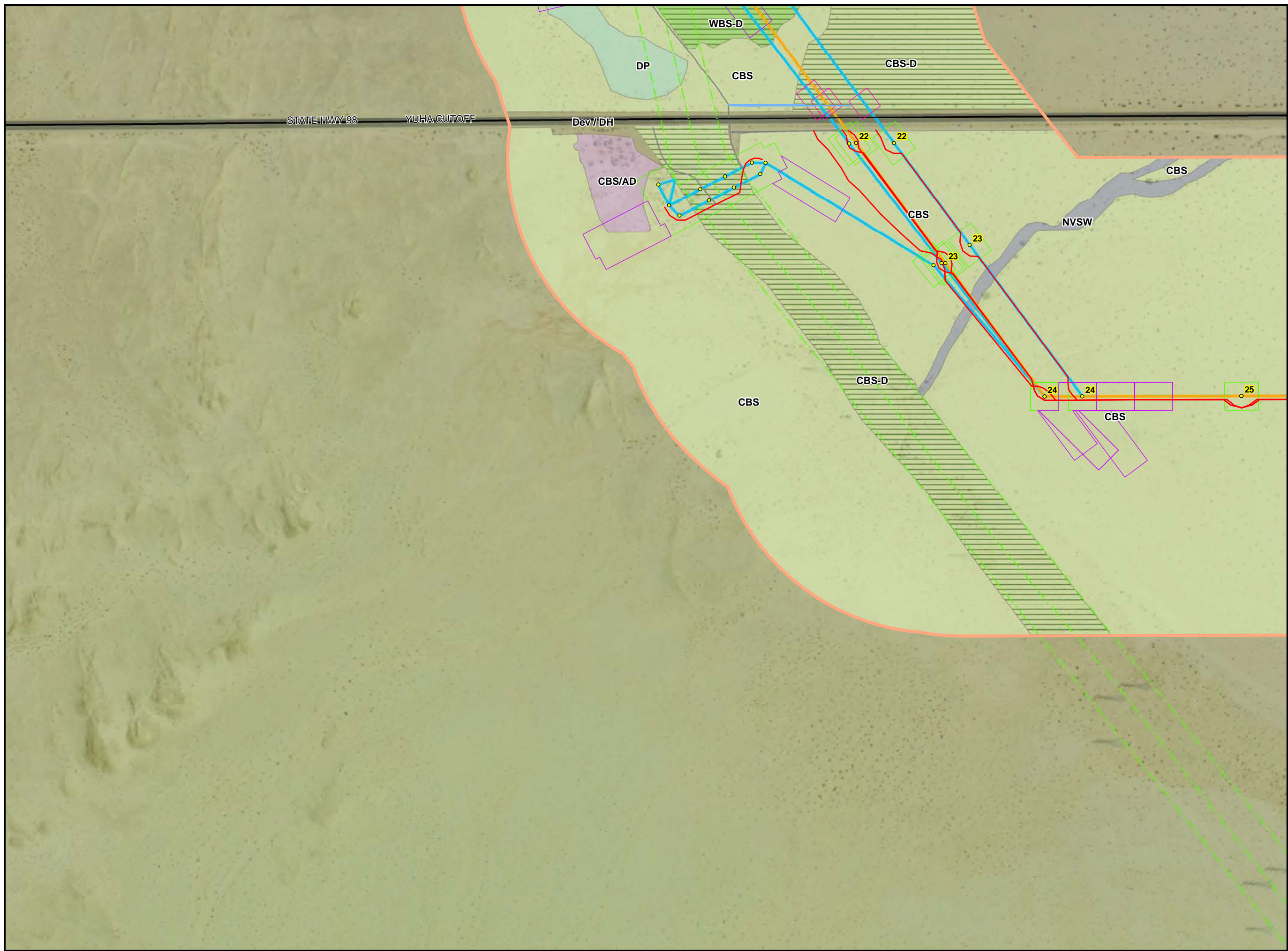
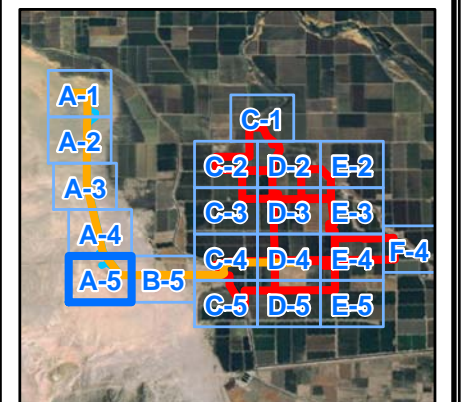
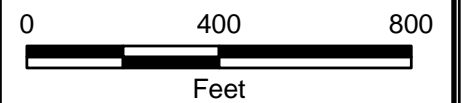


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Vegetation

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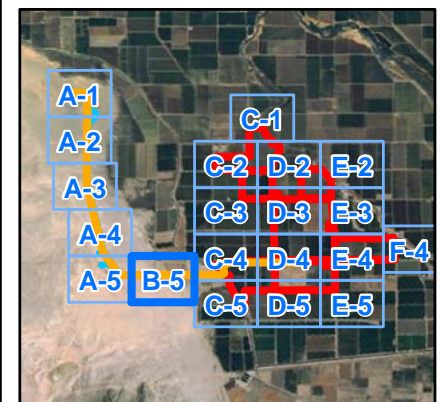
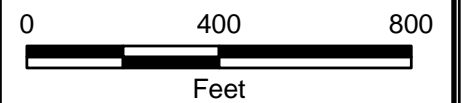


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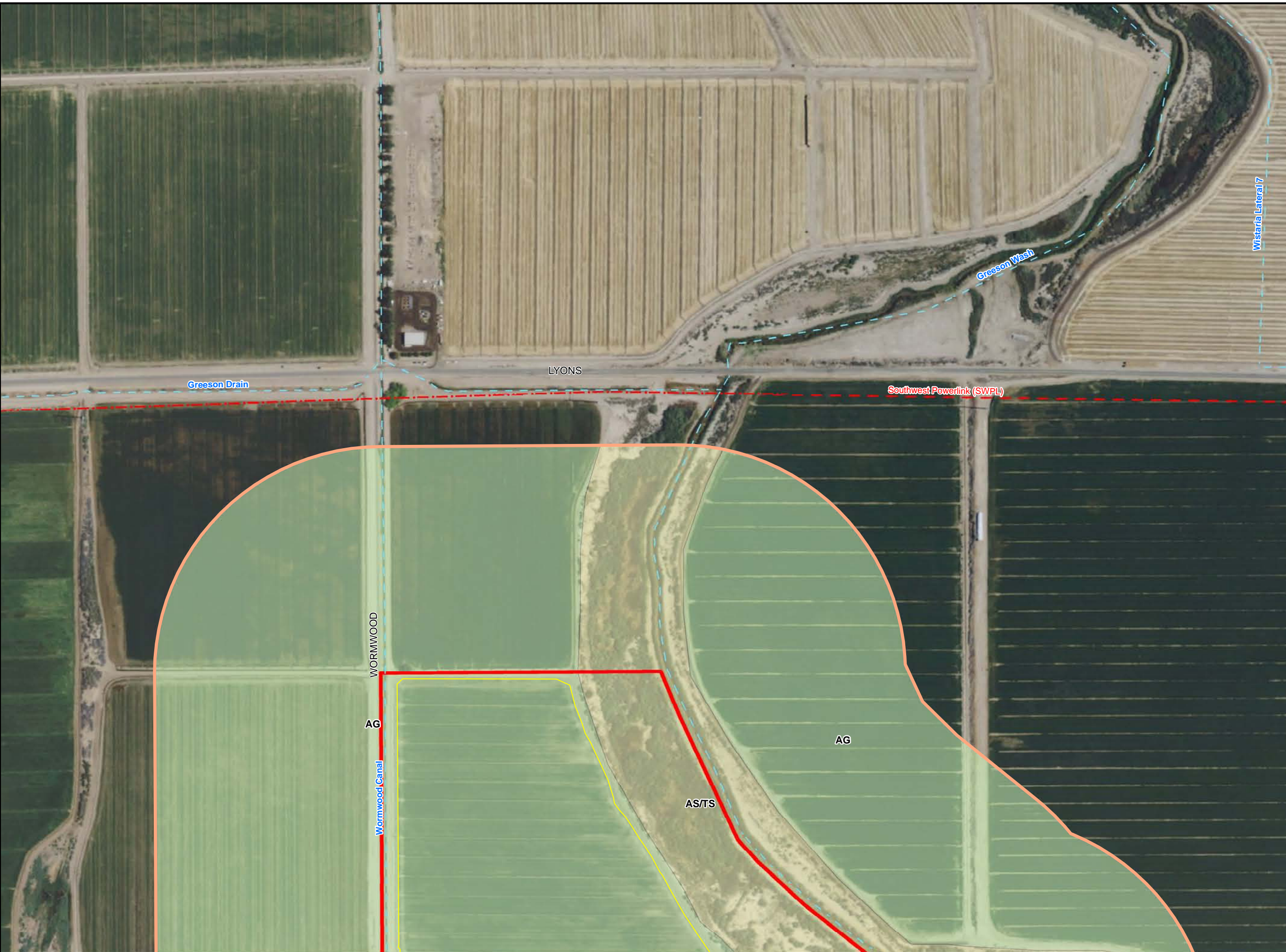
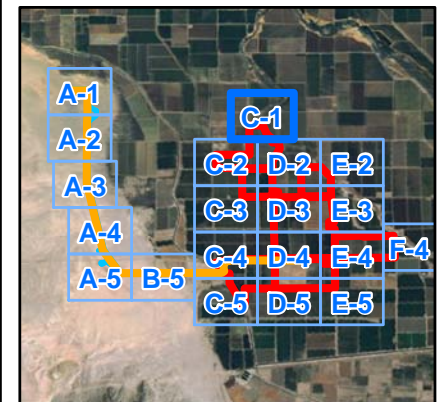
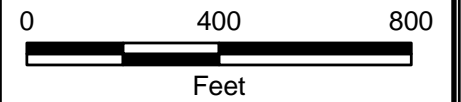


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Vegetation

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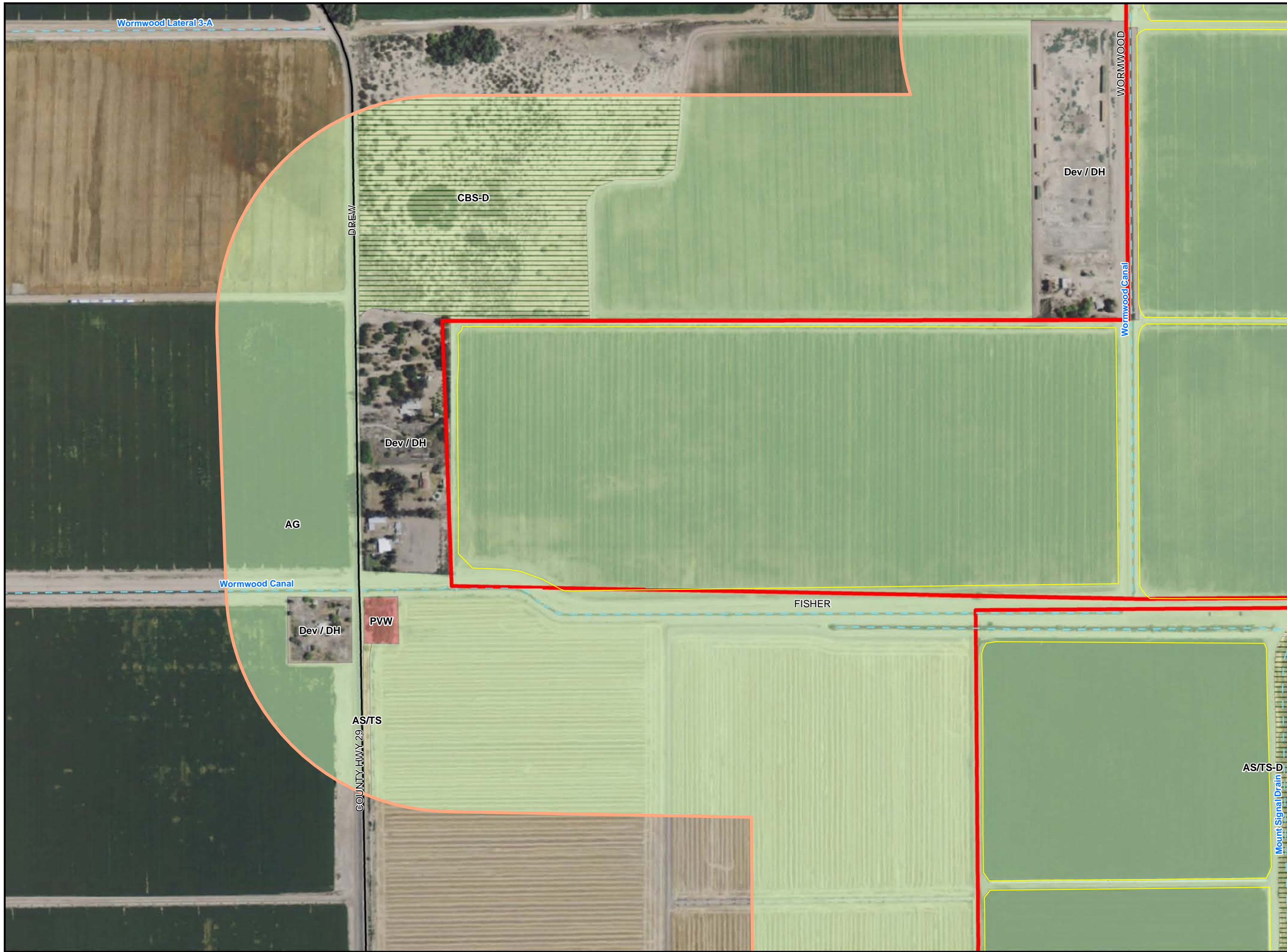
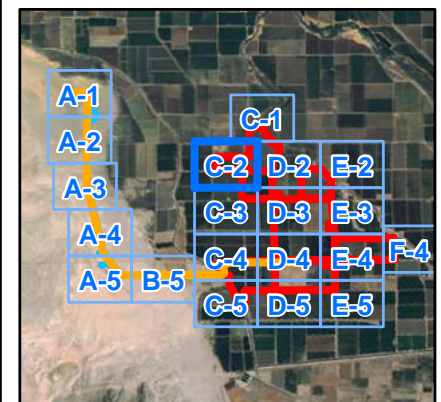
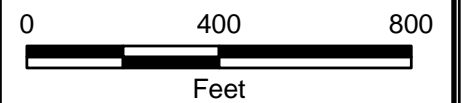


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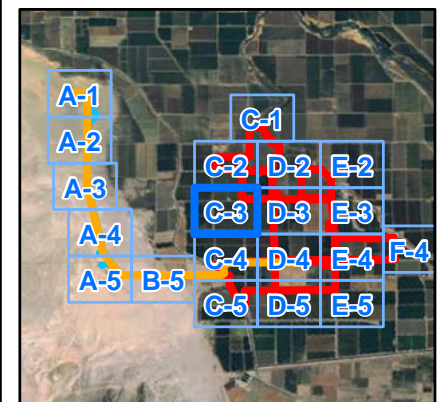
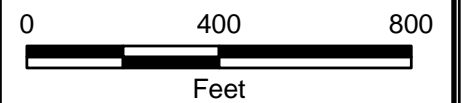


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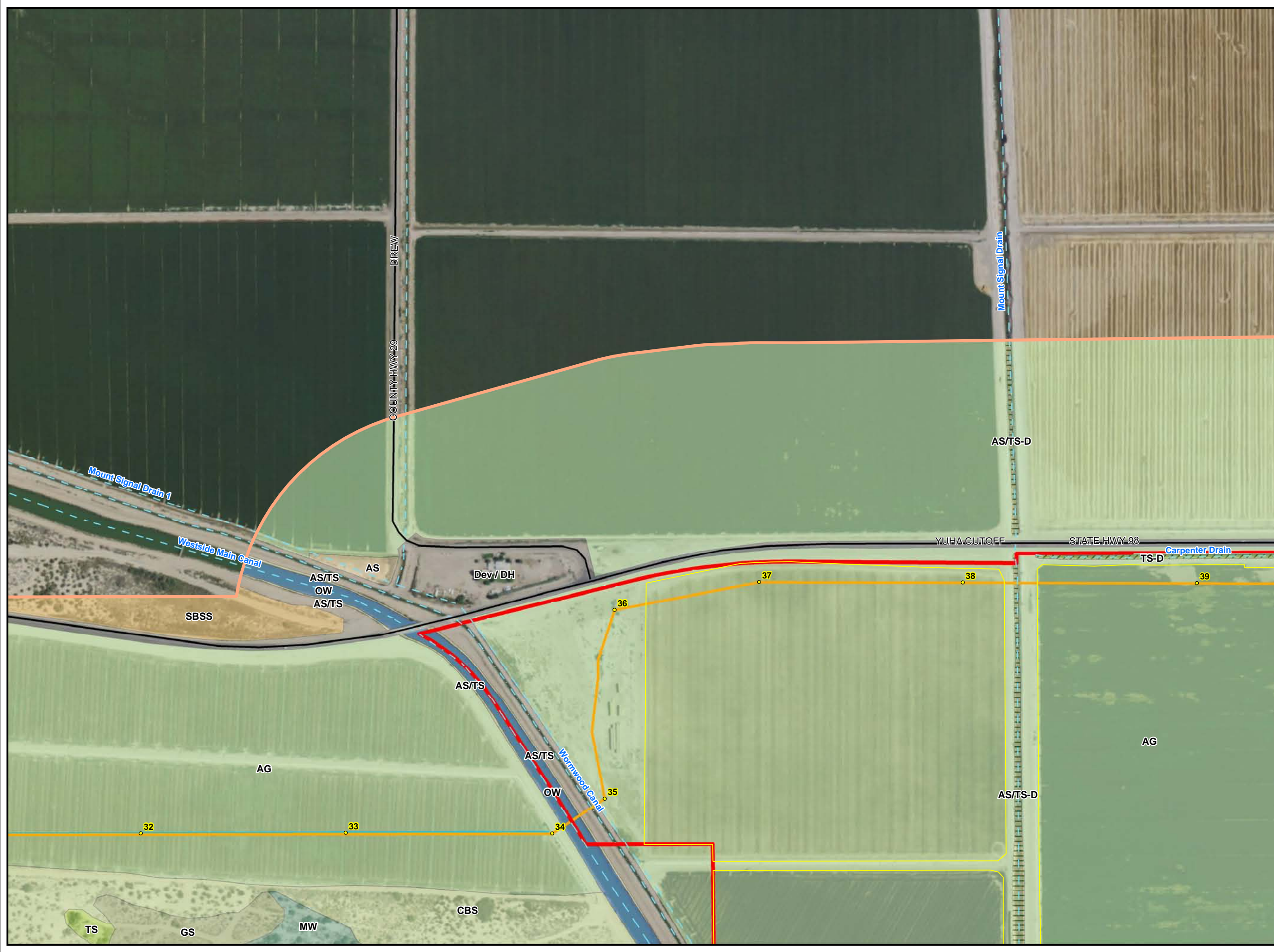
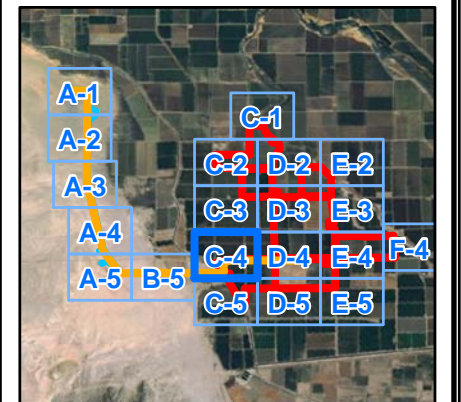
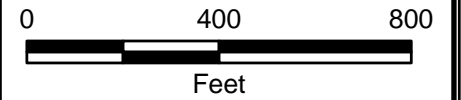


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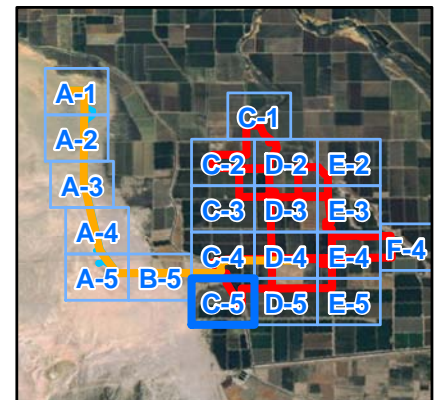
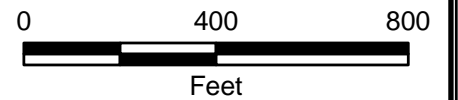


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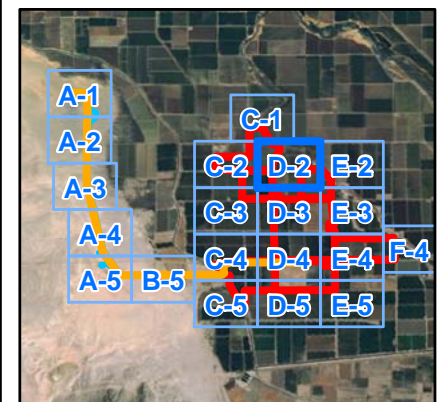
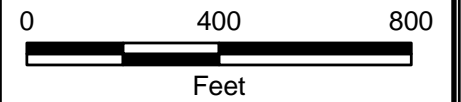


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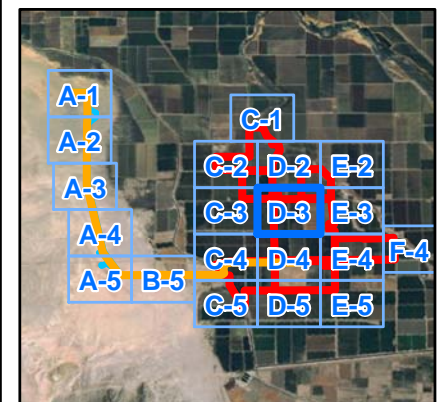
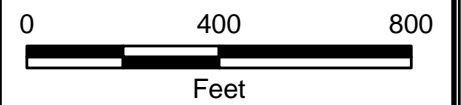


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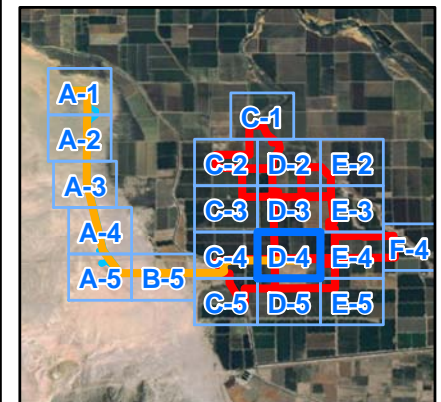
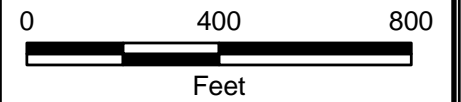


Centinela

Vegetation

Legend



















- Gen-tie Structure
- - - Existing 500 kV Transmission Line
- - - Existing 230 kV Transmission Line
- Gen-tie Line Route
- Alternative Gen-tie Line Route
- Major Road
- Existing Access Road
- New Access Road
- Temporary Access Road
- - - Stream, Major Canal and/or Irrigation Canal
- - - County Boundary
- ▭ CSE Action Area
- ▭ CSE Facility
- ▭ CSE Facility Disturbance Area
- ▭ Temporary Work Area
- ▭ Pulling & Tensioning Area
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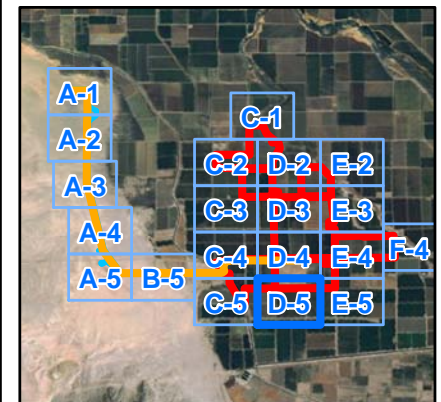
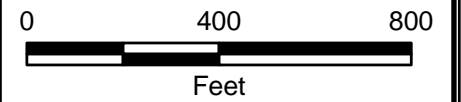


Centinela

Vegetation

Legend

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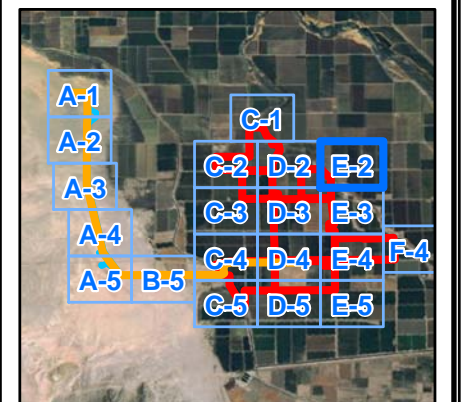
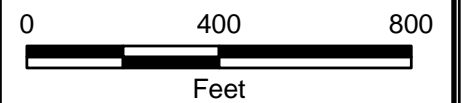


Centinela

Vegetation

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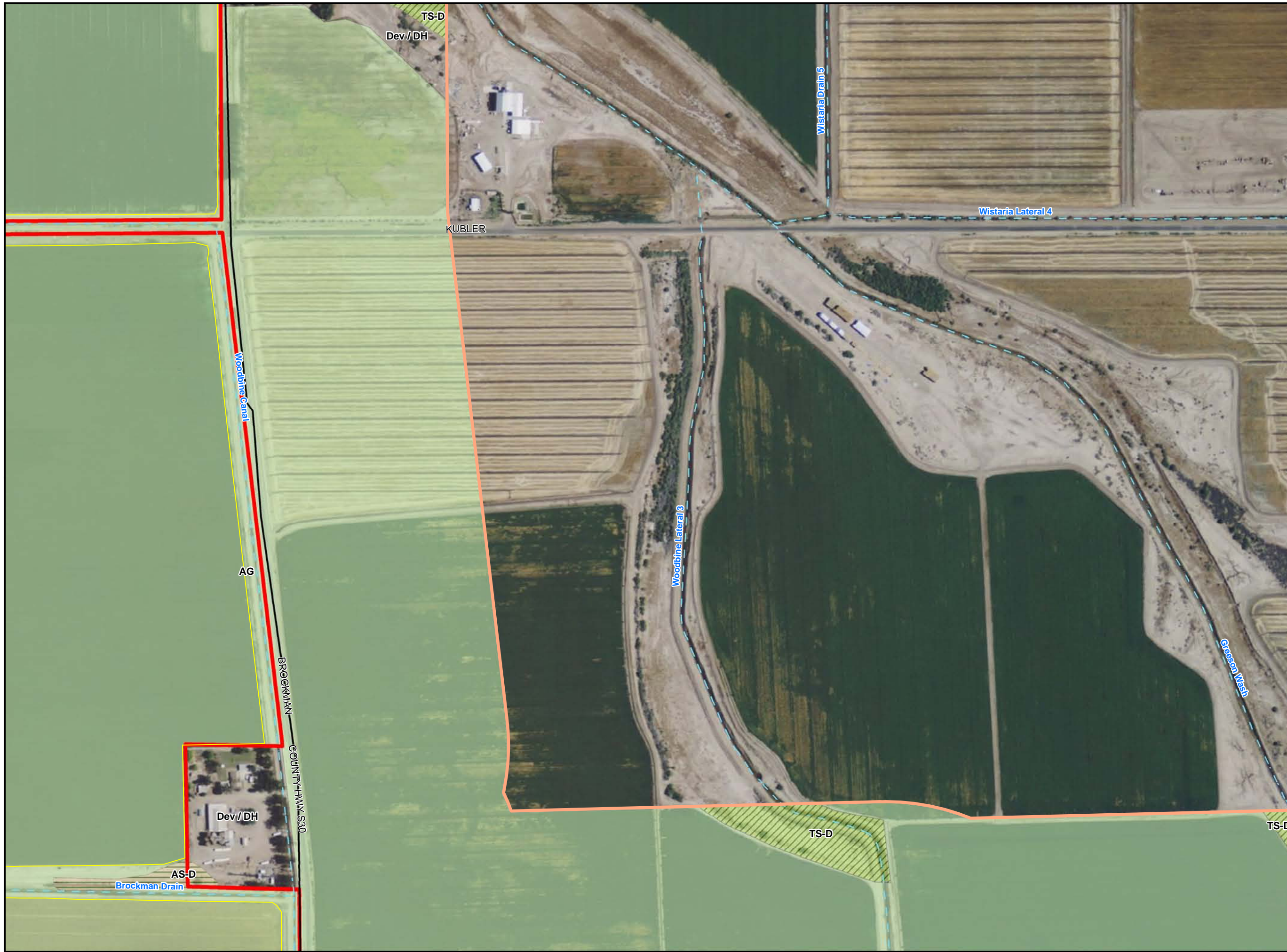
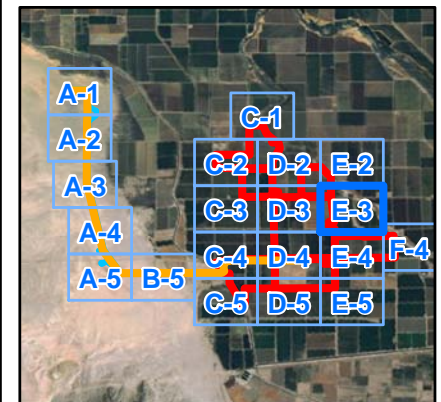
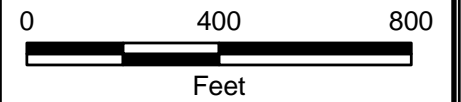


Centinela

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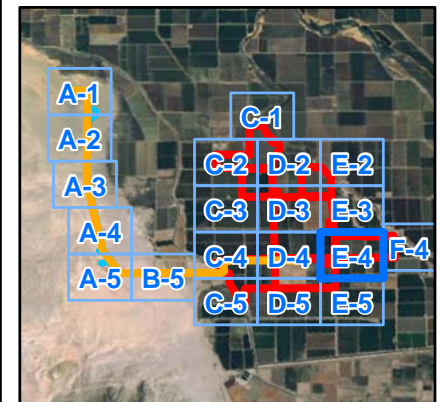
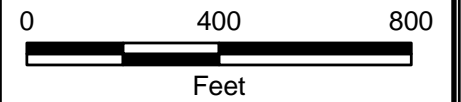


Centinela

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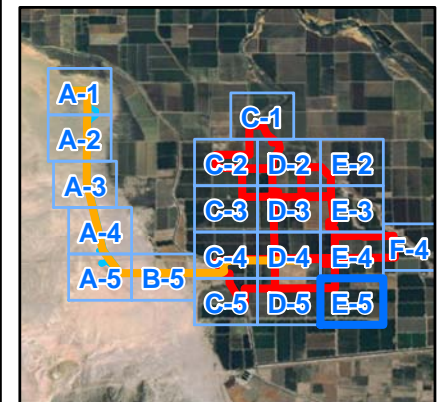
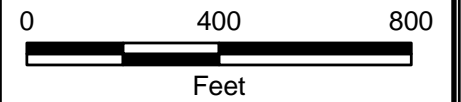


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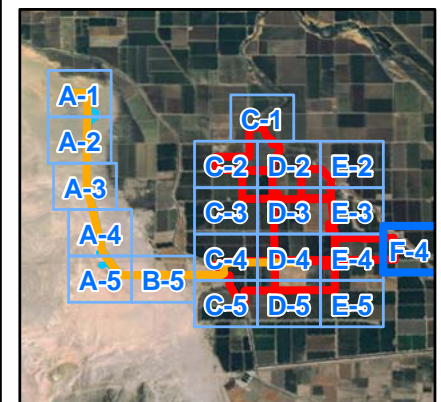
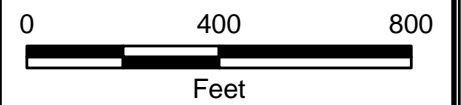


Centinela

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**ATTACHMENT 2—PLANT SPECIES OBSERVED IN
THE CSE SURVEY AREA**

CSE Project - Plant Species Observed in Study Area

Scientific Name	Common Name	Habitat Association
Ephedraceae		
<i>Ephedratrifurca</i>	Three-fork ephedra	DS
Arecaceae		
<i>Washingtonia</i> sp.	Mexican fan palm	AD
Agavaceae		
<i>Hesperocallis undulata</i>	Desert lily	DS
Poaceae		
<i>Aristida purpurea</i> var. <i>purpurea</i>	Purple three-awn	DS
<i>Avena sativa</i>	Cultivated oats	
<i>Cynodon dactylon</i>	Bermuda grass	AD
<i>Hilaria rigida</i>	Big galleta	Wash
<i>Leptochloa</i> sp.	Sprangletop	Ditches
<i>Phragmites australis</i>	Common reed	Canals
<i>Poa</i> sp.	Bluegrass	AD
<i>Schismus barbatus</i>	Mediterranean grass	DS
<i>Vulpia</i> sp.		
Typhaceae		
<i>Typha latifolia</i>	Cattails	Canals
Amaranthaceae (inc. Chenopodiaceae)		
<i>Atriplex elegans</i> var. <i>fasciculata</i>	Wheelscale	AD
<i>Atriplex polycarpa</i>	Allscale	DS
<i>Atriplex canescens</i>	Shadscale	DS
<i>Atriplex lentiformis</i>	Big saltbush	DS
<i>Bassia hyssopifolia</i>	Five-hook bassia	AD
Apocynaceae		
<i>Nerium oleander</i>	Oleander	AD
Asteraceae		
<i>Ambrosia dumosa</i>	White Bursage	DS
<i>Ambrosia salsola</i>	Cheesebush	Wash
<i>Baccharis pilularis</i>	Coyote bush	DS
<i>Baileya pauciradiata</i>	Short-ray desert marigold	DS
<i>Chaenactis stevioides</i>	Desert pincushion	DS
<i>Chloracantha spinosa</i> var. <i>spinosa</i>	Mexican devil weed	AD
<i>Dicoria canescens</i>	Desert dicoria	Wash
<i>Encelia farinosa</i>	Brittlebush	DS
<i>Encelia frutescens</i>	Rayless encelia	DS

Scientific Name	Common Name	Habitat Association
<i>Geraea canescens</i>	Desert sunflower	DS
<i>Isocoma acradenia</i>	Goldenbush	DS
<i>Malacothrix glabrata</i>	Desert dandelion	DS
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles	DS
<i>Pluchea serricea</i>	Arrow-weed	Canal Banks
<i>Rafinesquia neomexicana</i>	Desert chicory	DS
Bignoniaceae		
<i>Chilopsis linearis</i>	Desert willow	Wash
Boraginaceae		
<i>Cryptantha angustifolia</i>	Narrow-leaf cryptantha	DS
<i>Cryptantha costata</i>	Ribbed cryptantha	Wash
<i>Cryptantha maritima</i>	White-hair cryptantha	DS
<i>Pectocarya</i> sp.	Pectocarya	DS
Brassicaceae		
<i>Brassica tournefortii</i>	Sahara mustard	DS
<i>Descurainia sophia</i>	Tansy mustard	DS
<i>Dithyrea californica</i>	Spectacle-pod	DS
<i>Lepidium</i> sp.	Shining peppergrass	VP
<i>Streptanthella longirostris</i>	Long-beak twist flower	DS
Cactaceae		
<i>Cylindropuntia echinocarpa</i> sp.	Silver cholla	DS/Wash
Caryophyllaceae		
<i>Achyronychia cooperi</i>	Onyx flower	DS
Euphorbiaceae		
<i>Chamaesyce micromera</i>	Sonora sandmat	DS
<i>Croton californicus</i>	California croton	DS, Wash
<i>Ditaxis lanceolata</i>	Desert silverbush	DS
<i>Ditaxis neomexicana</i>	New Mexico ditaxis	DS
<i>Stillingia spinulosa</i>	Annual stillingia	DS
Ehretiaceae		
<i>Tiquilia plicata</i>	Plicate coldenia	DS
Fabaceae		
<i>Acacia greggii</i>	Catclaw	Wash
<i>Astragalus aridus</i>	Parch locoweed	Wash terraces
<i>Cercidium floridum</i> ssp. <i>floridum</i>	BluePalo Verde	Wash/Planted
<i>Dallea mollissima</i>	Soft prairie clover	DS
<i>Lupinus arizonicus</i>	Arizona lupine	DS
<i>Lupinus concinnus</i>	Bajada lupine	DS
<i>Medicago sativa</i>	Alfalfa	AD

Scientific Name	Common Name	Habitat Association
<i>Olneya tesota</i>	Ironwood	Wash
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Honey mesquite	Wash
<i>Prosopis pubescens</i>	Screw bean mesquite	Wash
<i>Psoralea schottii</i>	Indigo bush	DS
<i>Psoralea spinosus</i>	Smoke tree	Wash
Hydrophyllaceae		
<i>Nama hispida</i> var. <i>spathulatum</i>	Rough purple mat	Wash
Krameriaceae		
<i>Krameria grayi</i>	White rhatany	DS
Malvaceae		
<i>Eremalche exilis</i>	Trailing mallow	DS
<i>Eremalche rotundifolia</i>	Desert five-spot	DS
<i>Malvella leprosa</i>	Alkali mallow	DS
<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	Apricot mallow	DS
Loasaceae		
<i>Mentzelia dispersa</i>	Nada stick-leaf	DS
Myrtaceae		
<i>Eucalyptus sideroxylon</i>	Red iron bark	AD
Nyctaginaceae		
<i>Abronia villosa</i> var. <i>villosa</i>	Desert sand verbena	DS
Onagraceae		
<i>Camissonia brevipes</i>	Sun cup	DS
<i>Oenothera deltoides</i>	Basket evening-primrose	DS
Orobanchaceae		
<i>Orobanche cooperi</i>	Pine broom-rape	DS
Plantaginaceae		
<i>Plantago ovata</i>	Woolly plantain	DS
<i>Plantago patagonica</i>	Desert plantain	DS
Polemoniaceae		
<i>Langloisia setosissima</i> ssp. <i>setosissima</i>	Bristly langloisia	DS
<i>Loeseliastrum matthewsii</i>	Desert calico	DS
Polygonaceae		
<i>Eriogonum deserticola</i>	Imperial buckwheat	DS
<i>Eriogonum wrightii</i>	Buckwheat	DS
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	Brittle spineflower	DS
<i>Chorizanthe rigida</i>	Rigid spineflower	DS
<i>Rumex</i> sp.	Dock	Ditch
Portulacaceae		
<i>Callandrinia ambigua</i>	Desert pot herb	DS

Scientific Name	Common Name	Habitat Association
Rafflesiaceae		
<i>Pilostyles thurberi</i>	Thurber's pilostyles	DS
Resedaceae		
<i>Oligomeris linifolia</i>	Narrow-leaf oligomeris	DS
Solanaceae		
<i>Daturja wrightii</i>	Jimson weed	DS
<i>Lycium brevipes</i> var. <i>brevipes</i>	Common desert thorn	Wash
<i>Solanum elaeagnifolium</i>	Silver-leaf horse-nettle	AD
Tamaricaceae		
<i>Tamarix ramosissima</i>	Tamarisk	Ditch, Canal
<i>Tamarix aphylla</i>	Athel	DS
Zygophyllaceae		
<i>Larrea tridentata</i>	Creosote bush	DS
<i>Tribulus terrestris</i>	Puncture vine	DS

**ATTACHMENT 3–WILDLIFE SPECIES OBSERVED
IN THE CSE SURVEY AREA**

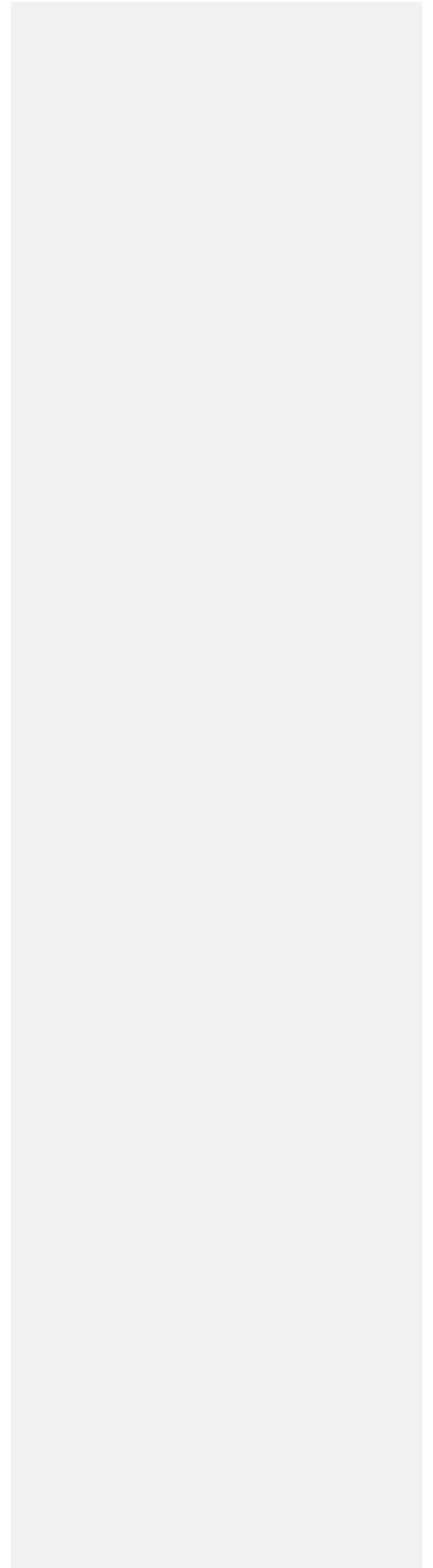
CSE Project - Wildlife Species Observed/Detected in Study Area

<i>Common Name</i>	<i>Scientific Name</i>
Birds	
American Avocet	<i>Recurvirostra Americana</i>
Abert's Towhee	<i>Pipilo aberti</i>
American Coot	<i>Fulica americana</i>
American Kestrel	<i>Falco sparverius</i>
American Pipit	<i>Anthus rubescens</i>
Anna's Hummingbird	<i>Calypte anna</i>
Bank Swallow	<i>Riparia riparia</i>
Barn Owl	<i>Tyto alba</i>
Barn Swallow	<i>Hirundo rustica</i>
Bell's Vireo	<i>Vireo bellii</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Black Phoebe	<i>Sayornis nigricans</i>
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>
Black-necked Stilt	<i>Himantopus mexicanus</i>
Black-tailed Gnatcatcher	<i>Polioptila melanura</i>
Blue Grosbeak	<i>Passerina caerulea</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Burrowing Owl	<i>Athene cunicularia</i>
California Gull	<i>Larus californicus</i>
Canada Goose	<i>Branta canadensis</i>
Cattle Egret	<i>Bubulcus ibis</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Common Ground Dove	<i>Columbia passerina</i>
Common Moorhen	<i>Gallinula chloropus</i>
Common Raven	<i>Corvus corax</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
European Starling	<i>Sturnus vulgaris</i>
Gambel's Quail	<i>Callipepla gambelii</i>
Glossy Ibis	<i>Plegadis falcinellus</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Great-tailed Grackle	<i>Quiscalus mexicanus</i>

<i>Common Name</i>	<i>Scientific Name</i>
Greater Roadrunner	<i>Geococcyx californianus</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Green Heron	<i>Butorides virescens</i>
Hermit Warbler	<i>Dendroica occidentalis</i>
Horned Lark	<i>Eremophila alpestris</i>
House Finch	<i>Carpodacus mexicanus</i>
Killdeer	<i>Charadrius vociferus</i>
Lark Bunting	<i>Calamospiza melanocorys</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Lesser Nighthawk	<i>Chordeiles acutipennis</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Long-billed Curlew	<i>Numenius americanus</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Macgillivray's Warbler	<i>Oporornis tolemiei</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Flicker	<i>Colaptes auratus</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Northern Rough-winged Swallow	<i>Stelgidpteryx serripennis</i>
Prairie Falcon	<i>Falco mexicanus</i>
Purple Martin	<i>Progne subis</i>
Red-necked Phalarope	<i>Phalaropus lobatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
Rock Dove	<i>Columbia livia</i>
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>
Sandhill Crane	<i>Grus canadensis</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Say's Phoebe	<i>Sayornis saya</i>
Snowy Egret	<i>Egretta thula</i>
Song Sparrow	<i>Melospiza melodia</i>
Turkey Vulture	<i>Cathartes aura</i>
Unidentified Bird	<i>Aves sp.</i>
Unidentified Empidonax Flycatcher	<i>Empidonax sp.</i>
Unidentified Gnatcatcher	<i>Polioptila sp.</i>
Unidentified Hummingbird	<i>Trochilidae sp.</i>

<i>Common Name</i>	<i>Scientific Name</i>
Unidentified Sparrow	<i>Eberizidae</i> sp.
Unidentified Warbler	<i>Parulidae</i> sp.
Verdin	<i>Aurparus flaviceps</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Western Bluebird	<i>Sialia mexicana</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Western Sandpiper	<i>Calidris mauri</i>
Western Tanager	<i>Piranga ludovciana</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
White-faced Ibis	<i>Plegadis chihi</i>
White-throated Swift	<i>Aeronautes saxatalis</i>
White-winged Dove	<i>Zenaida asiatica</i>
Willow Flycatcher (Southwestern)	<i>Empidonax trailii extimus</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Yellow-rumped Warbler (Audubon's)	<i>Dendroica coronata auduboni</i>
Mammals	
Bobcat	<i>Lynx rufus</i>
Coyote	<i>Canis latrans</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Kangaroo rat	<i>Dipodomys</i> sp.
Round-tailed Ground Squirrel	<i>Xerospermophilus tereticaudus</i>
Reptiles	
Desert Iguana	<i>Dipsosaurus dorsalis</i>
Flat-tailed Horned Lizard	<i>Phrynosoma mcallii</i>
Gecko	<i>Coleonix</i> sp.
Sidewinder	<i>Crotalus cerastes</i>
Sonoran gopher snake	<i>Pituophis catenifer affinis</i>
Western whiptail	<i>Cnemidophorus tigris</i>
Amphibians	
American bullfrog	<i>Rana catesbeiana</i>

**APPENDIX 1 – BURROWING OWL SURVEY
REPORT**



Centinela Solar Energy, LLC Protocol Burrowing Owl Survey Report 2009 - 2011

Phase I, II and III Survey Report

Prepared for:

*Centinela Solar Energy, LLC
c/o LS Power Development, LLC
5000 Hopyard Road, Suite 480
Pleasanton, California 94588*

Prepared by:

*Heritage Environmental Consultants, LLC
2870 Emporia Court
Denver, Colorado 80238*



June 2011

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Figure 4b	Active Burrows – 2009/2010 Winter Season
Figure 4c	Active Burrows – 2010 Breeding Season
Figure 4d	Active Burrows – 2011 Breeding Season

1.0 PROJECT OVERVIEW

Western Burrowing Owls (*Athene cunicularia hypugea*) are common in Imperial County and were identified as a species of interest during the early planning stages for the solar electric power generating facility and associated electric line proposed by Centinela Solar Energy, LLC (CSE). The project is located in Imperial County, approximately eight miles southwest of El Centro, California, and would use Photovoltaic (PV) technology to produce up to approximately 275 megawatts (MW) of electricity on 2,067 acres of private land (CSE Facility), 1,861 acres of which are actively cultivated farmland. The CSE Facility is generally bordered by the Westside Canal on the west and Greeson Wash on the east (**Figure 1**).

The project also includes approximately 7 miles of 230-kilovolt (kV) overhead electric line (Gen-tie Line) to electrically interconnect the CSE Facility with the nearby Imperial Valley Substation. The Gen-tie Line will originate at the CSE Facility substation, located immediately south of Highway 98 and approximately ½ mile east of Pulliam Road, and extend approximately 1.5 miles generally west through the CSE Facility site. From the western boundary of the CSE Facility site, the Gen-tie Line would extend across the West Side Main Canal and continue approximately 1.25 miles through private agricultural lands south of Highway 98. The remaining approximately 4.25 miles extends through federal lands managed by the Bureau of Land Management (BLM), first west then north, to connect with the Imperial Valley Substation (**Figure 1**). The proposed ROW width on lands managed by BLM is 125 feet. Alternatives for the proposed project are all located within the survey area. The CSE Facility and Gen-tie Line are collectively referred to as the CSE Project and encompass an area referred to as the CSE Project Area.

The purpose of the surveys was to identify Burrowing Owl nests on or near the CSE Facility, within the Gen-tie Line ROW, and associated buffers (see **Section 3.0**).

2.0 Introduction

The California Department of Fish and Game (CDFG) Inland Deserts Region was contacted in April 2009 to determine if surveys should be conducted prior to an environmental analysis. Craig Weightman, Senior Environmental Scientist, CDFG requested that the surveys be conducted prior to any permitting so the results could be used as a baseline for the environmental analysis (Weightman 2009).

The Burrowing Owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the Migratory Bird Treat Act (MBTA) and California Fish & Game Code §§ 3503, 3503.5, 3513. Nesting occurs from March through August. Burrowing Owls typically form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing Owls are opportunistic feeders, consuming a diet that includes arthropods (typically insects), small mammals, small birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities in California remain in the Central and Imperial valleys (DeSante et al. 1996), where this species is a year-round resident in Imperial County.

The Burrowing Owl is primarily restricted to the western United States and Mexico. Habitat for the Burrowing Owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County it is found in desert scrub, grasslands, and agricultural areas, where it digs its own or occupies existing burrows.

The California Burrowing Owl Consortium (CBOC) developed a Survey Protocol and Mitigation Guidelines (CBOC 1993) to meet the need for uniform standards when surveying Burrowing Owl populations and evaluating impacts from development projects. These guidelines are generally accepted by the California Department of Fish and Game (CDFG) and are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect Burrowing Owls or the resources that support them. The CDFG recommended that CSE follow these guidelines for this survey (Weightman 2009).

The CBOC guidelines suggest Burrowing Owl surveys be conducted in three phases. The purpose of a Phase I survey is to assess the presence of Burrowing Owl habitat in the project area. Phase II surveys are necessary to determine if suitable burrows occur on the site. Phase III surveys are intended to characterize owl presence during the nesting season and/or during winter. This report presents the findings of the Phase I, II, and III surveys within the proposed CSE Facility, proposed Gen-tie Line corridor, and associated buffers (see **Section 3.0**).

3.0 Study Area

The study area is comprised of three main components: (1) the 2,067-acre CSE Facility; (2) the 7-mile Gen-tie Line corridor; and (3) a 500-foot buffer surrounding both the CSE Facility and the Gen-tie Line.

The CSE Facility site is primarily active agricultural lands growing crops such as alfalfa, Sudan grass, and Bermuda grass. Native vegetation on the site is generally absent with a few exceptions. The fields on the site are ringed by a series of earthen and concrete canals and drains that provide irrigation and drainage for the fields. Sporadic, very limited riparian and wetland vegetation occur along portions of the earthen canals and berms. This vegetation is a mixture of native and non-native species and includes arrow weed (*Pluchea serricea*), cattails (*Typha* sp.), tamarisk (*Tamarix ramosissima*), bitter dock (*Rumex obtusifolius*), and sprangletop (*Leptochloa* sp.). Routine maintenance of these drains and canals by the Imperial Irrigation District (IID) involves the periodic removal of vegetation to maintain uninhibited water flow. Since vegetation clearing is a routine activity, the wetland vegetation is always sparse and not well developed. Removal of this vegetation also provides suitable Burrowing Owl habitat once mammals return to these areas and excavate burrows; therefore, Burrowing Owl habitat in the project area is regularly changing, including creation of new burrow sites and loss of existing burrow sites. Topography in the study area is generally flat.

The Gen-tie Line crosses approximately 2.75-miles of active agricultural land that is similar to the CSE Facility. The remaining 4.25-miles of the Gen-tie Line crosses native desert within the Yuha Basin. This area is generally flat Colorado Desert that is intersected by several small ephemeral washes. Most habitats within this portion of the Gen-tie route are dominated by creosote bush – white bursage (*Larrea tridentate* – *Ambrosia dumosa*) scrub, smoke tree (*Psoralea spinosa*) wash scrub, encelia (*Encelia frutescens* ssp. *frutescens*) – white bursage scrub, developed/disturbed areas, white bursage – disturbed, mesquite – catclaw (*Prosopis glandulosa* var. *torreyana* – *Acacia greggii*)/mesquite bosques, desert pavement, and non-vegetated sandy wash.

4.0 Survey Methods

4.1 PHASE I AND PHASE II SURVEYS

Phase I and Phase II surveys were conducted simultaneously by qualified biologists during the breeding season (March-August), according to the CBOC guidelines (1993). The Phase I habitat assessments determined that most of the study area contains suitable Burrowing Owl habitat, and Phase II burrow surveys were conducted.

Phase II surveys covered the entire study area and potentially suitable burrows were recorded. Transects at 30-meter spacing were walked along the Gen-tie Line corridor to ensure that all suitable burrows were identified, including a 500-foot buffer around the project area.

Burrows that had the potential to be used by Burrowing Owls were marked using a handheld global positioning system (GPS) unit. Photos were taken of representative potential burrows, and owl observations were noted. “Burrow Clusters” were recorded in areas that supported higher densities of burrows to minimize the number of GPS points for potentially suitable burrows.

4.2 PHASE III SURVEYS

The Burrowing Owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities varies with latitude and climatic conditions. Phase III surveys were conducted during the breeding season, beginning March 1 through August; a winter survey was also conducted on a portion of the study area in January 2010. All Burrowing Owl sightings were recorded (including occupied burrows and burrows with sign) and mapped (**Figures 3a-d**). Numbers of adults and juveniles were recorded, as well as behavior such as courtship and copulation. Territory boundaries and foraging areas were not mapped, mainly because of the difficulty posed by the active nests being so close together where home-ranges potentially overlap.

Surveys were conducted in the morning and evening (one-half hour before to two hours after sunrise and two hours before to one-half hour after sunset). Burrows were examined for owl sign during the first observation of suitable burrows during Phase III surveys and occupied burrows were mapped. Subsequent observations were conducted from fixed points that provided visual coverage of the burrows using spotting scopes or binoculars. Observers remained in the vehicle to minimize disturbance to the birds as much as possible.

5.0 Survey Results

5.1 PHASE I AND II SURVEYS

In its current condition, the study area and surrounding areas were observed to contain suitable nesting habitat for Burrowing Owls. The survey area contains both natural and artificial burrows. Observed burrow densities in native habitats along the Gen-tie Line on BLM-managed lands are significantly lower than in agricultural habitats, many burrows are too small to be suitable, and none are active. The natural burrows were most commonly associated with slopes along berms, canals, or drains where soil conditions are apparently more suitable for burrow construction. In the absence of suitable natural burrows, Burrowing Owls have been known to nest in man-made features. Numerous man-made features in the study area also provide suitable artificial burrow opportunities, including concrete and metal culverts and irrigation pipes.

Phase I and II surveys were conducted between the spring of 2009 and the spring of 2011 because the project area was expanded and the Gen-tie Line route was refined. **Table 1** lists dates, times, and weather for the Phase II surveys. One-hundred and eight potentially suitable burrows were identified during the Phase II surveys (**Figure 3; Appendix A**).

Table 1. Phase I and Phase II Surveys

Date	Time	Weather Conditions
May 18, 2009	1300-1925	111°F; clear, calm
May 19, 2009	1030-1700	100°F; clear, calm
May 20, 2009	1400-1608	113°F; clear, calm
June 16, 2009	1441-1600	85°F; partly cloudy, calm
July 5, 2010	0715-1400	67-95°; clear, calm
January 4, 2010	1030-1430	73°F, clear, calm
January 5, 2010	1015-1300	72°F, clear calm
March 21, 2011	1130-1845	63°F, clear, windy (25 mph)
March 22, 2011	0655-1658	44-71°F, clear, calm

5.2 PHASE III SURVEYS

Table 2 lists dates, times, weather, and visibility for the Phase III surveys. Due to the number of active burrows and individuals observed, data for each active burrow have been included in **Appendix A**. **Table 3** summarizes the results of the Phase III survey and breaks down results by study area component. **Figure 4** shows the location of the active burrows. To the maximum extent practicable, active burrows were surveyed in reverse order during each round of Phase III surveys so that owls could be observed at different times of the day during each survey period.

Survey Results

Table 2. Phase III Surveys

Date	Time	Weather Conditions
May 19, 2009	0450-0915	73°F; clear, calm
	1730-2015	100°F; clear, calm
May 20, 2009	0500-0857	70°F; partly cloudy, calm
	1636-2001	113°F; clear, calm
May 21, 2009	0512-0855	75°; partly cloudy, calm
June 15, 2009	1737-2009	95°F; clear, winds 5-10 mph
June 16, 2009	0405-0846	73°F; light rain, calm
	1640-2015	87°F; partly cloudy, calm
June 17, 2009	0525-0918	78°F; clear, calm
July 22, 2009	1645-1952	113°F; clear, calm
July 23, 2009	0532-0817	89°F; clear, calm
	1700-1934	105°F; clear, calm
July 24, 2009	0530-0813	84°F; clear, calm
August 17, 2009	1630-1930	108°F; clear, calm
August 18, 2009	0612-0838	80°F; clear, calm
	1638-1928	110°F; clear, calm
August 19, 2009	0605-0844	85°F; clear, calm
January 4, 2010	1515-1728	69°F; partly cloudy, calm
January 5, 2010	0630-1017	40°F; clear, calm
	1440-1703	73°F; clear, calm
January 6, 2010	0615-1002	41°F; clear, calm
July 5, 2010	0525-0640	67°F; clear, calm
	1737-1836	104°F; clear calm
March 22, 2011	1658-1930	71°F; clear, calm
March 23, 2011	0617-0905	41°F; clear, calm
	1700-1854	76°F; clear, winds ~5 mph
March 24, 2011	1650-1912	71°F; clear, winds 5-15 mph
March 25, 2011	0618-0842	57°F; clear, winds 5-10 mph

There were a total of 51 active burrows identified in the study area from 2009 to 2011. There were 11 active burrows within the CSE Facility and 38 active burrows within the 500-foot buffer area. There were no active burrows identified within the Gen-tie Line ROW and two active burrows within the Gen-tie Line's 500-foot buffer area. (**Table 3; Figure 4**).

Survey Results

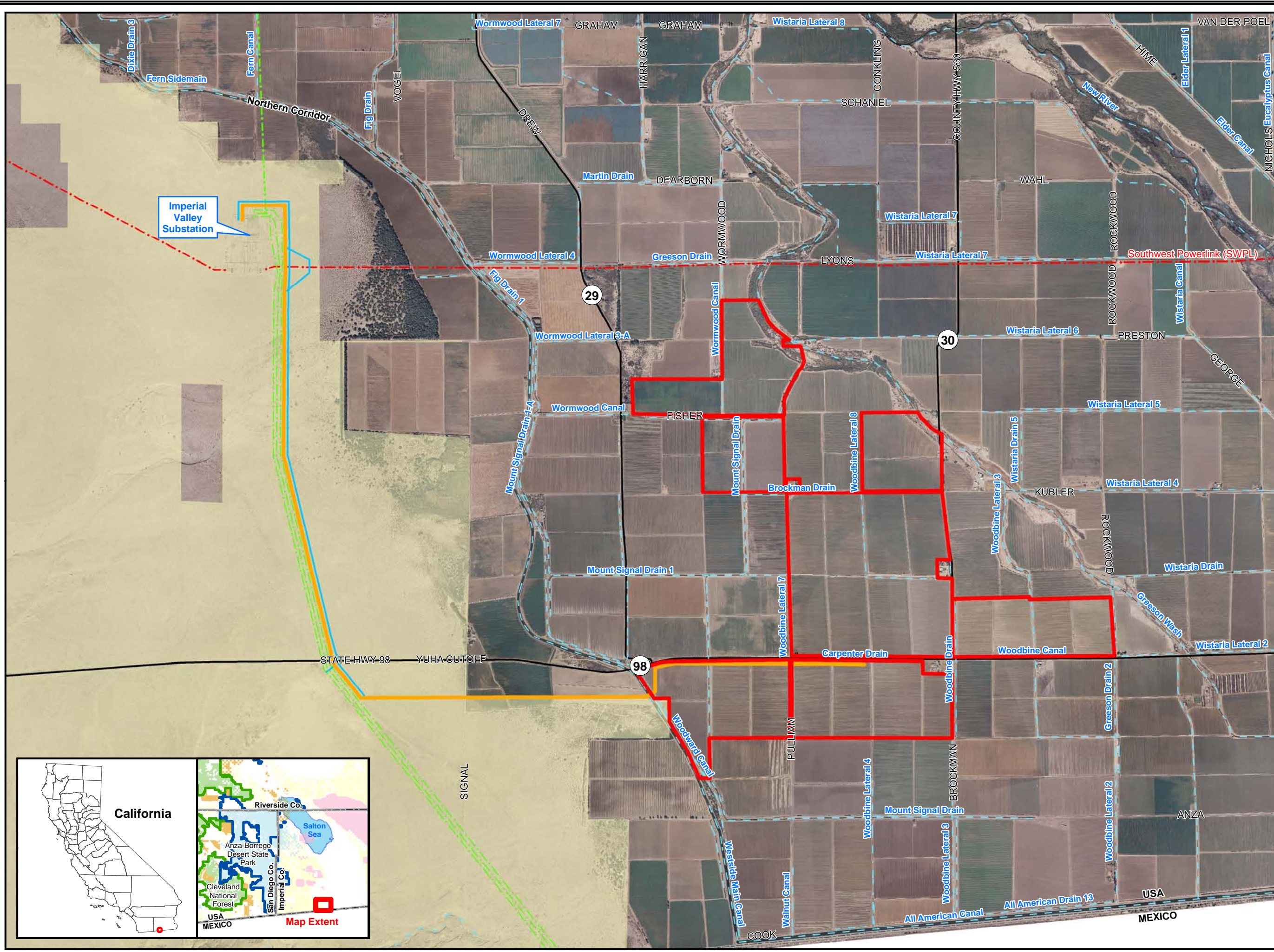
Table 3. Active Burrow Summary

Burrow Status	CSE Facility	CSE Facility Buffer	Gen-tie Line ROW	Gen-tie Line Buffer	Total
Active Burrows	11	38	0	2	51
Inactive Burrows	15	22	7	13	57
Total	26	60	7	15	108

A table enumerating all burrows and listing the survey results by year can be found in **Appendix A**.

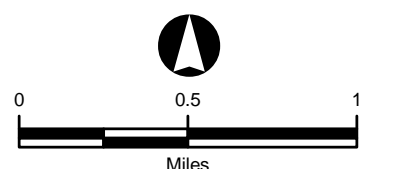
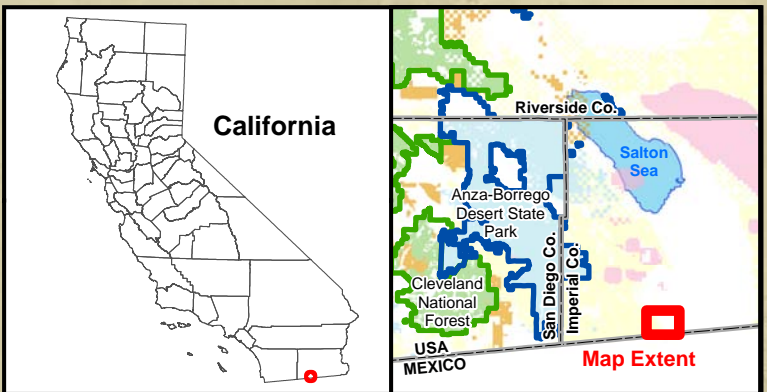
Centinela Solar Energy, LLC

Figure 1 Project Location



Legend

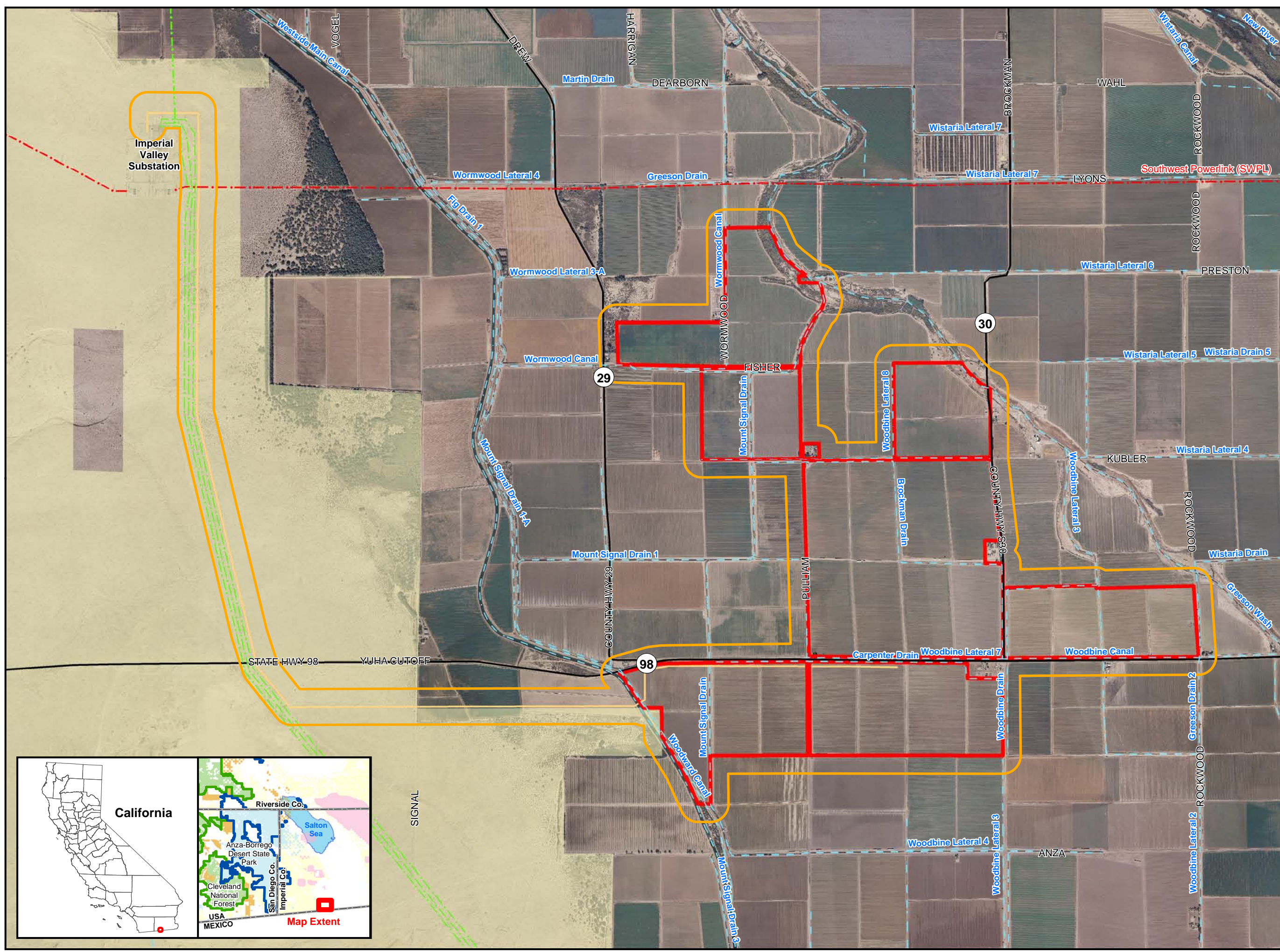
- Existing 500 kV Transmission Line
- Existing 230 kV Transmission Line
- Gen-tie Line Route
- Alternative Gen-tie Line Route
- Major Road
- Stream, Major Canal and/or Irrigation Canal
- County Boundary
- CSE Facility
- Major Water Body
- Cleveland National Forest Congressional Boundary
- State Park Boundary
- Jurisdictional Land Ownership
 - Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

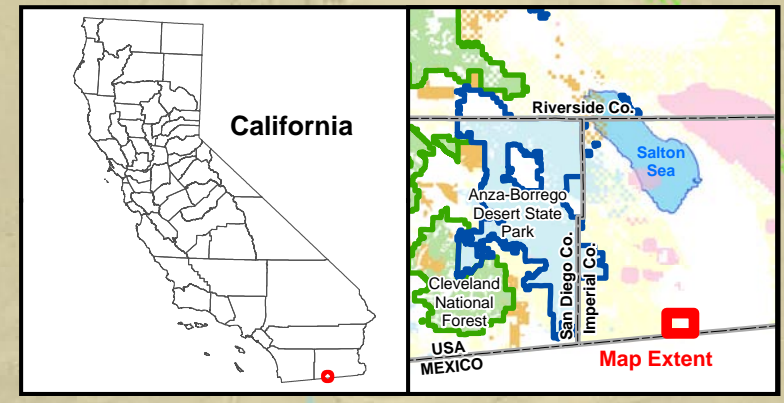
Centinel Solar Energy, LLC

Figure 2 Study Area



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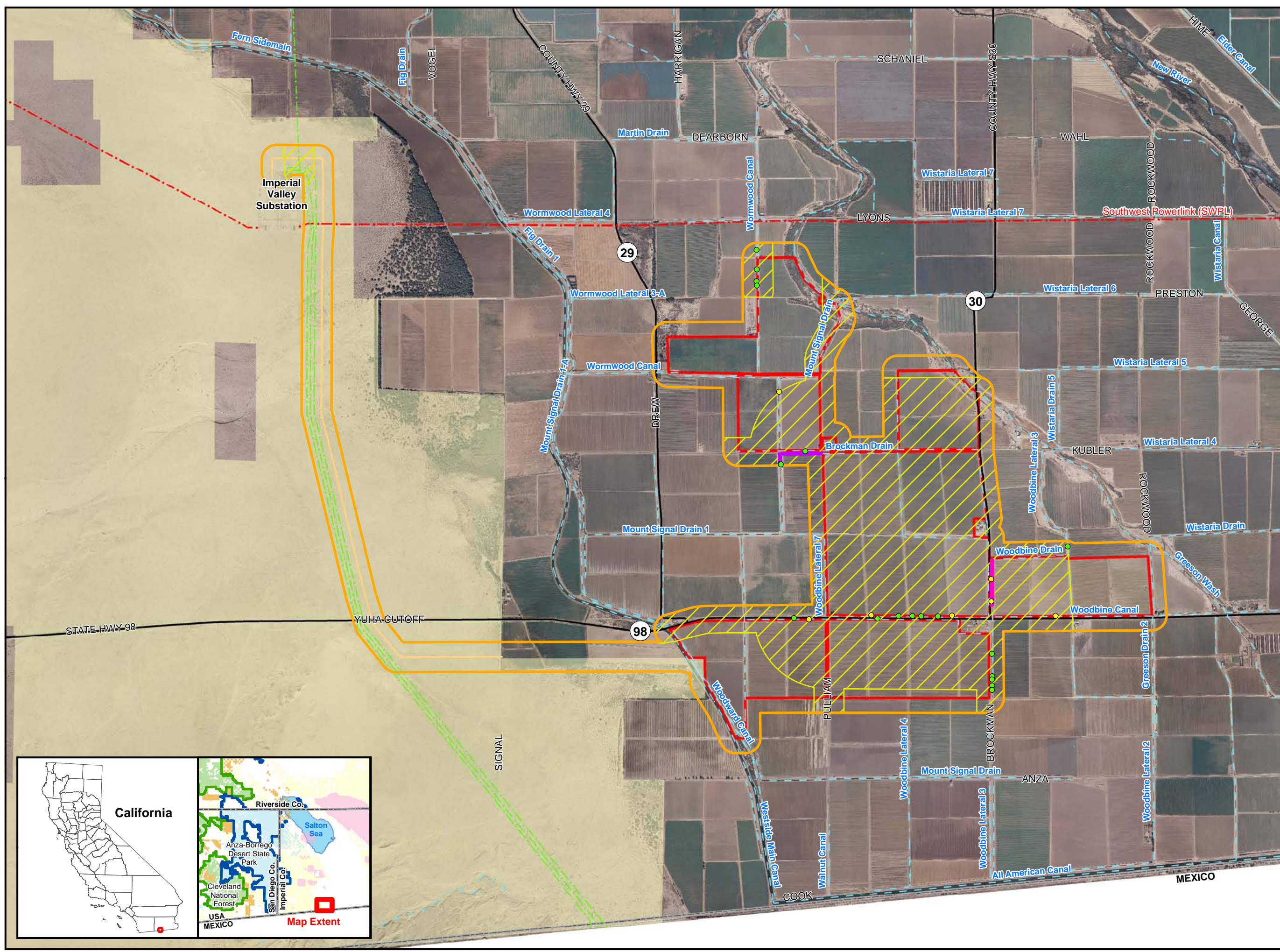
- - - Existing 500 kV Transmission Line
 - - - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - - - County Boundary
 - CSE Study Area
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
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 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



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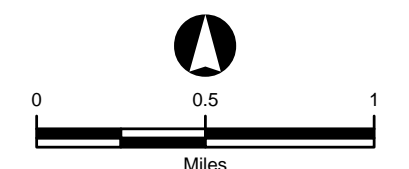
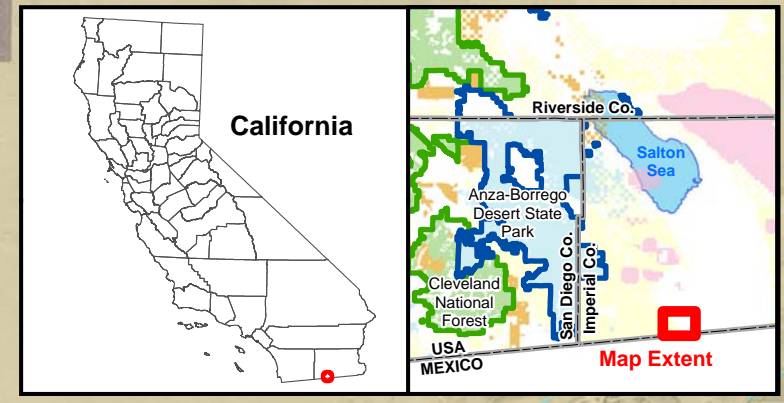
Centinela Solar Energy, LLC

Figure 3a Suitable Burrows - 2009 Breeding Season



Legend

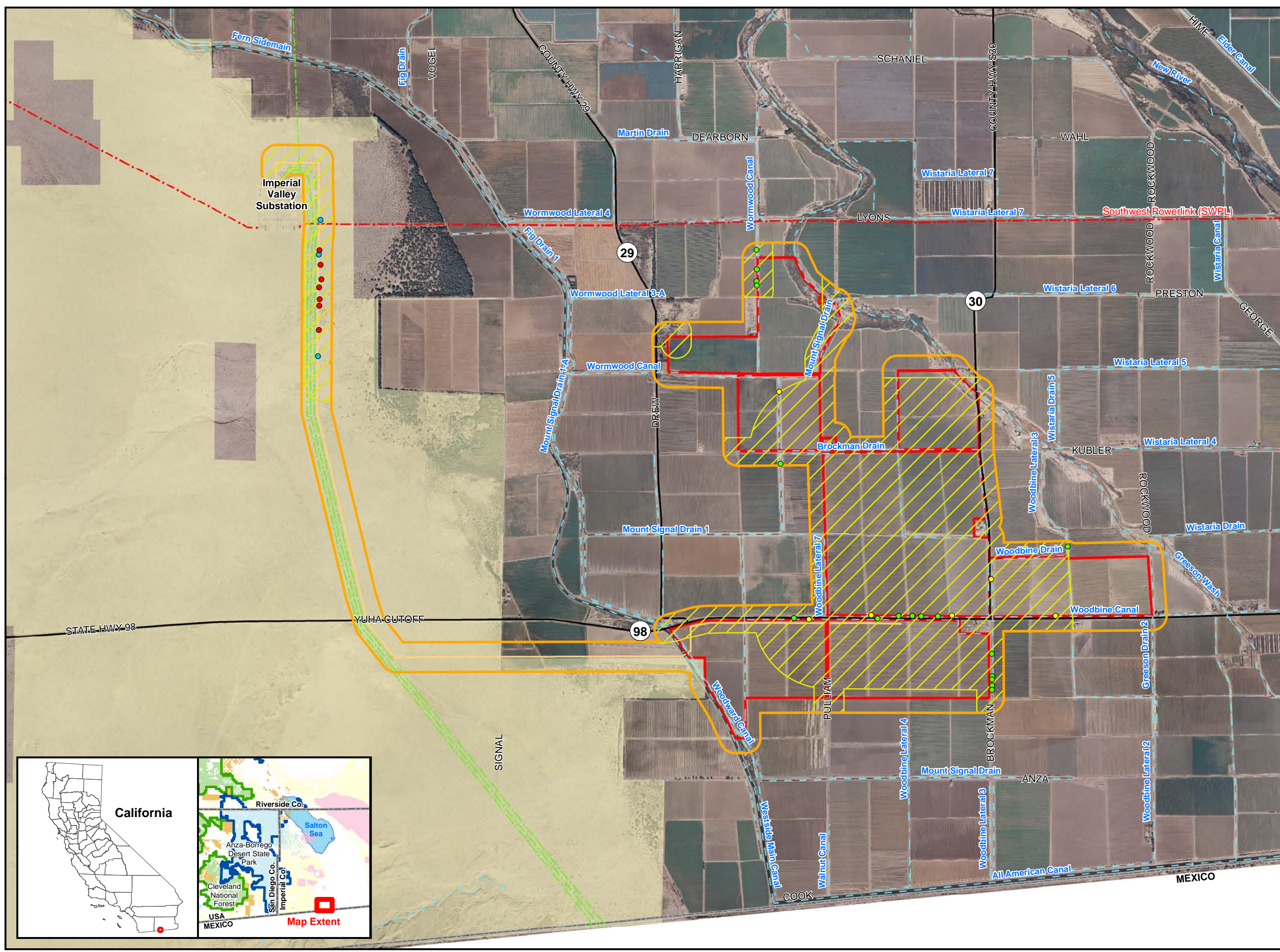
- Suitable Burrow within CSE Facility
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Burrow Cluster within CSE Facility
 - Burrow Cluster within CSE Facility 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009 Burrowing Owl Breeding Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
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 - State Park Boundary
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 - Department of Defense Land
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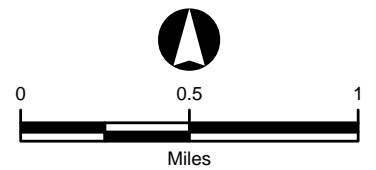
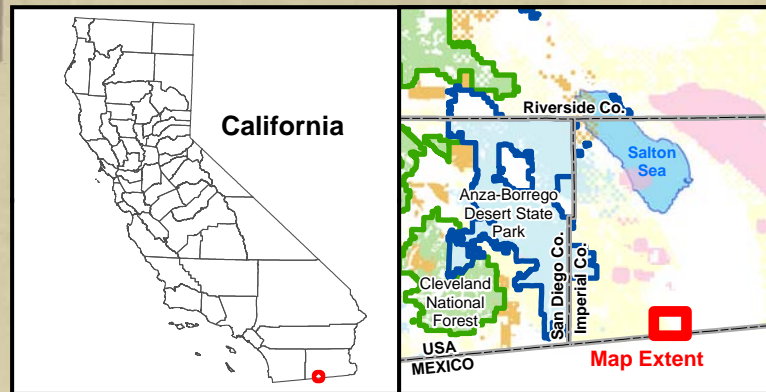
Centinela Solar Energy, LLC

Figure 3b Suitable Burrows - 2009/2010 Winter Season



Legend

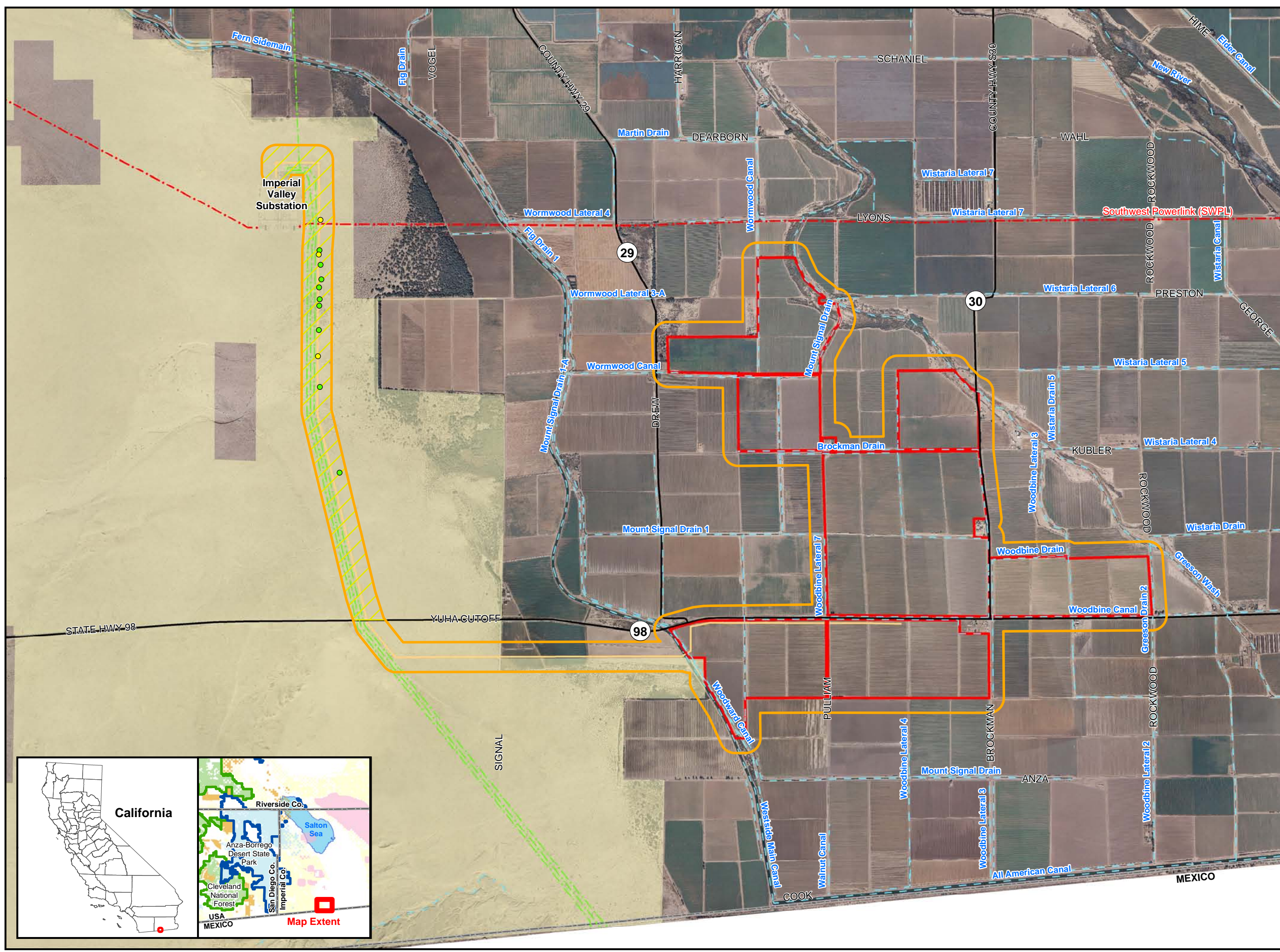
- Suitable Burrow within CSE Facility
 - Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Suitable Burrow within 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009/2010 Winter Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
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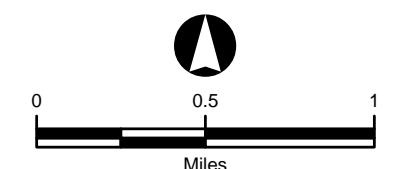
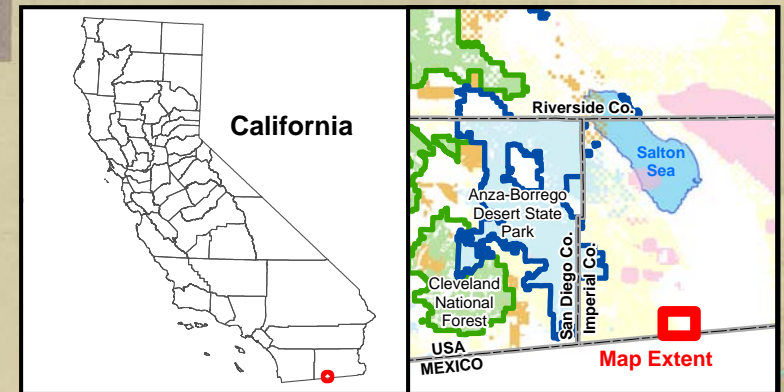
Centinela Solar Energy, LLC

Figure 3c Suitable Burrows - 2010 Breeding Season



Legend

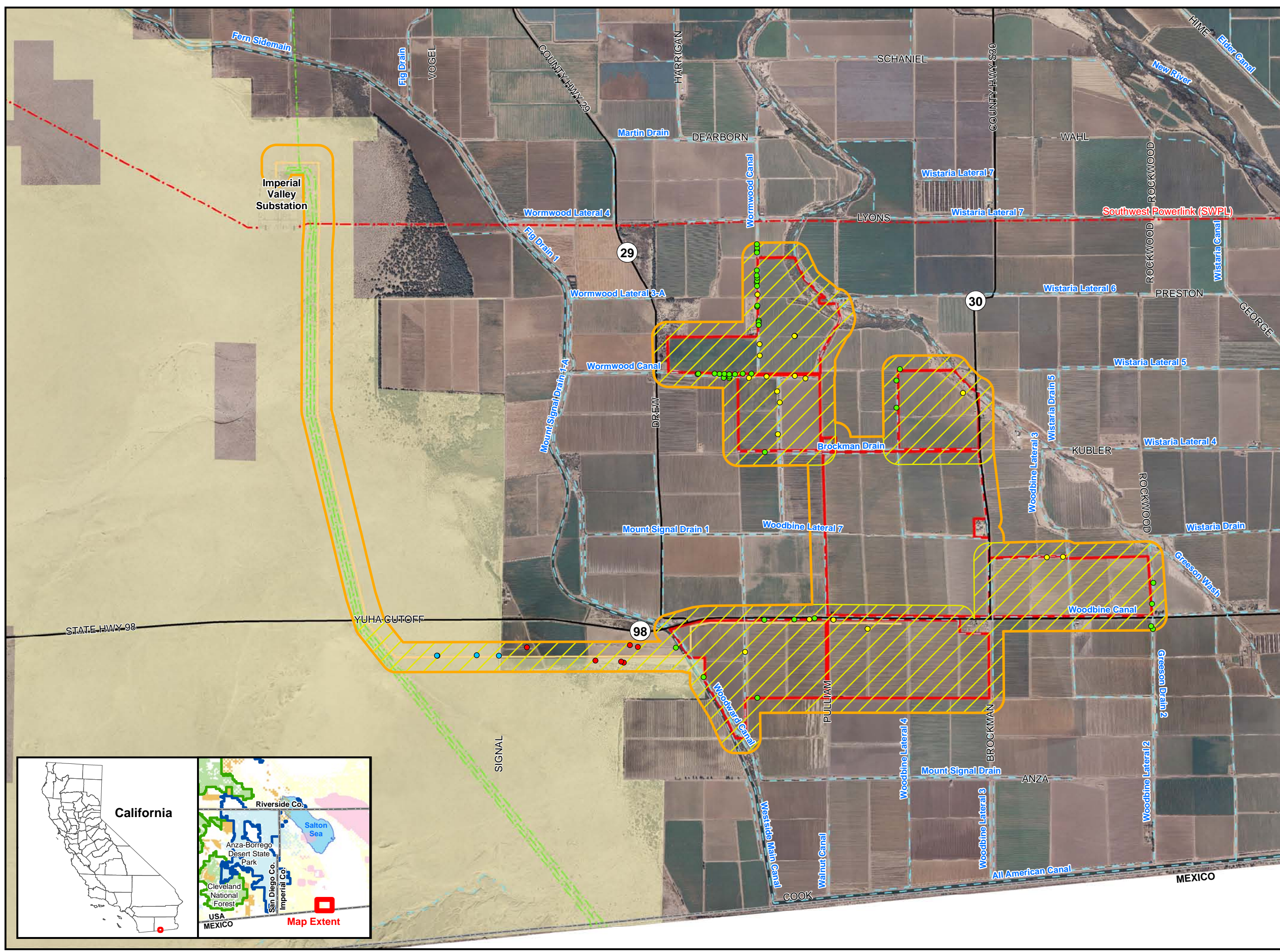
- Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2010 Burrowing Owl Breeding Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
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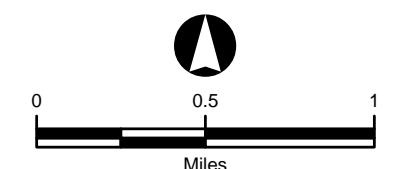
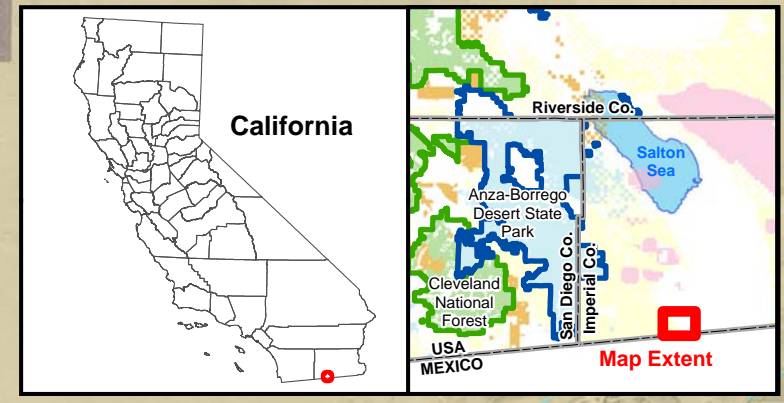
Centinela Solar Energy, LLC

Figure 3d Suitable Burrows - 2011 Breeding Season



Legend

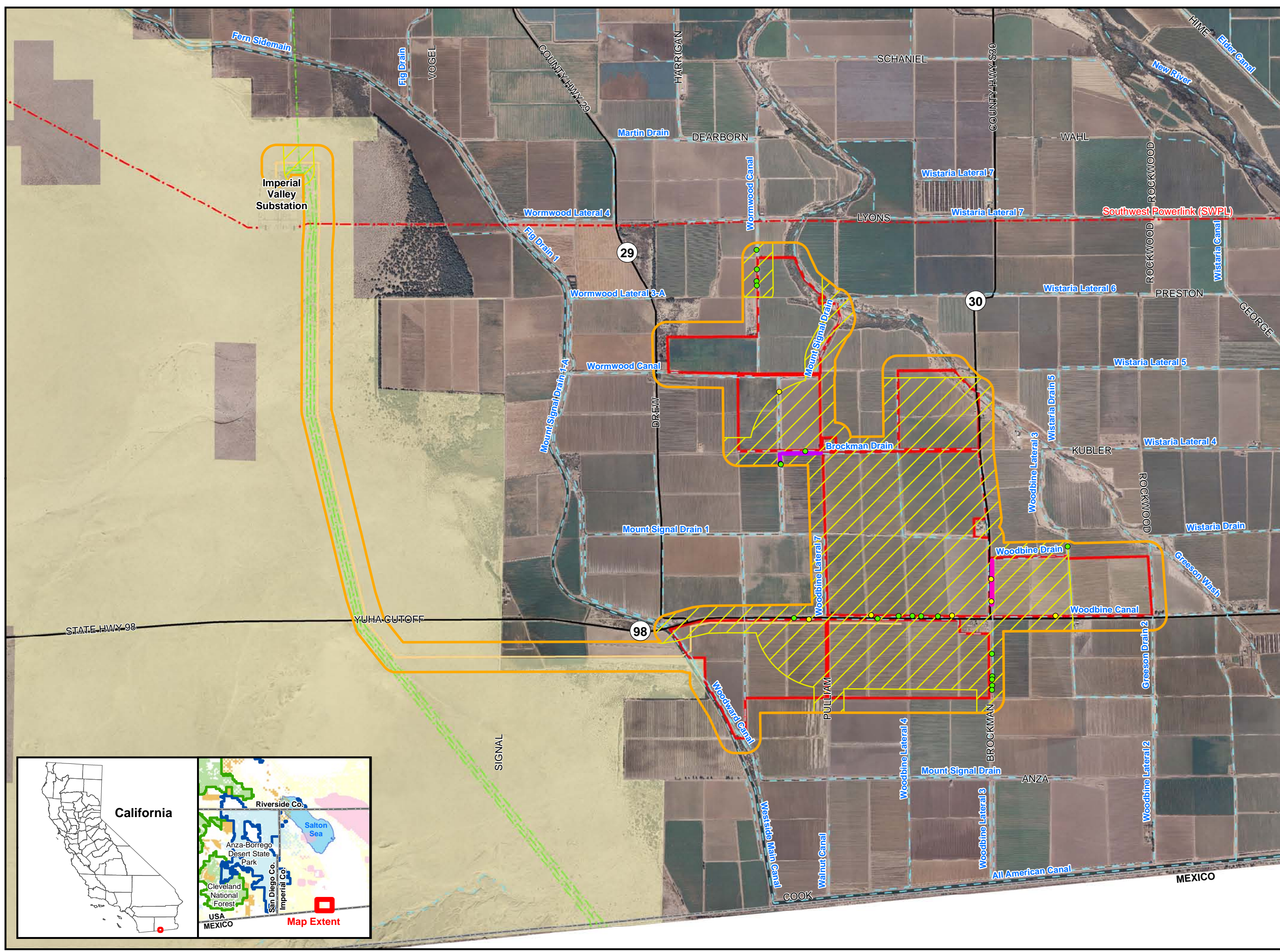
- Suitable Burrow within CSE Facility
 - Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - - - Existing 500 kV Transmission Line
 - - - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2011 Burrowing Owl Breeding Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
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- Jurisdictional Land Ownership**
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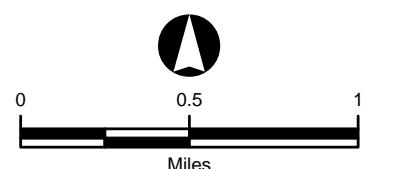
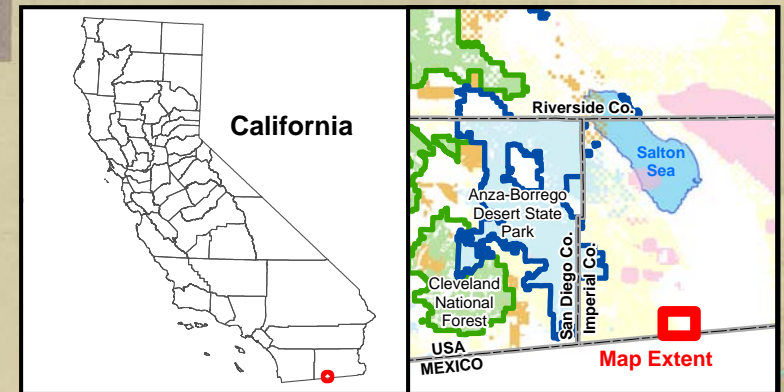
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Figure 4a Active Burrows - 2009 Breeding Season



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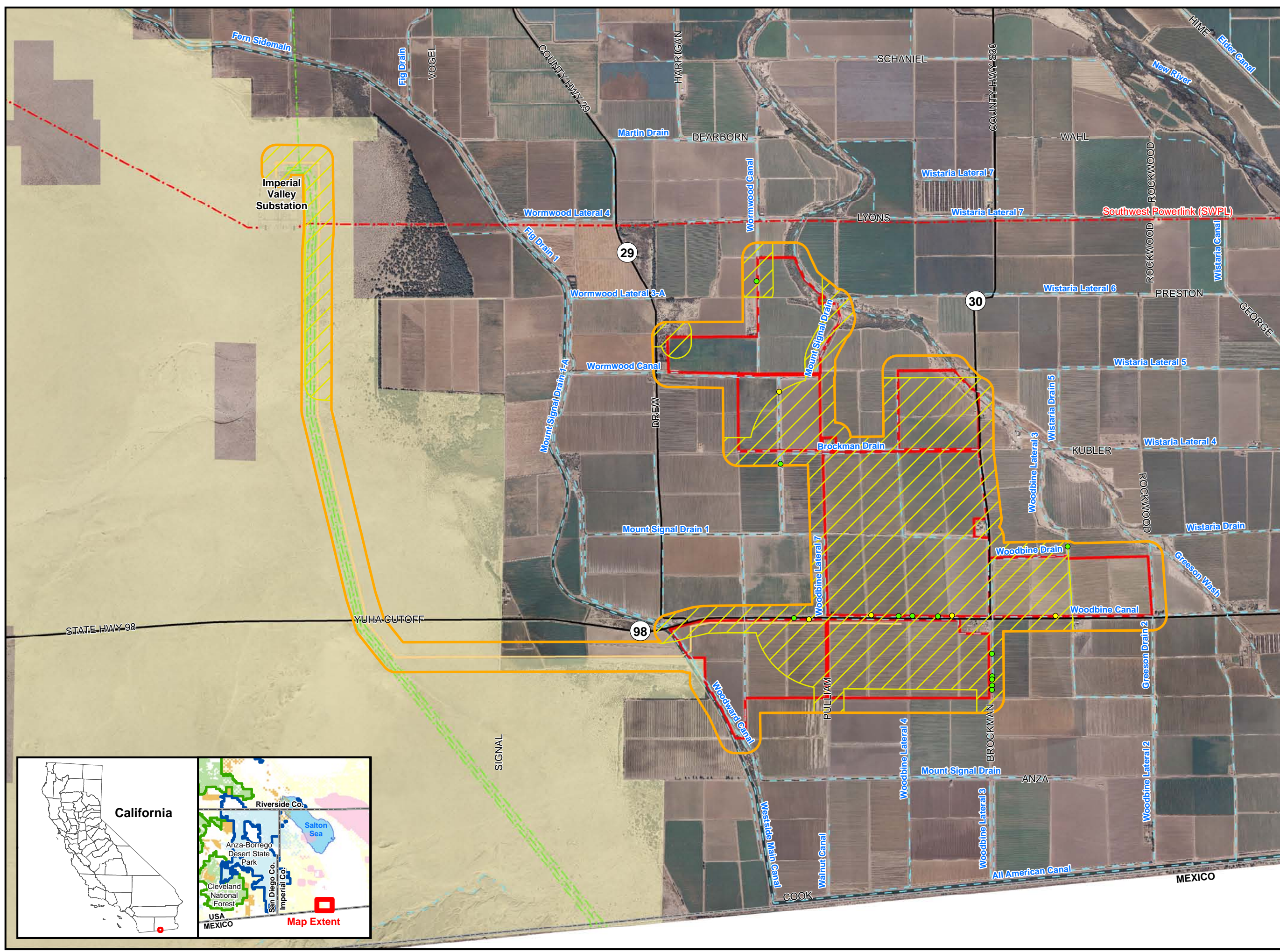
- Active Burrow within CSE Facility
 - Active Burrow within CSE Facility 500-Foot Buffer
 - Burrow Cluster within CSE Facility
 - Burrow Cluster within CSE Facility 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009 Burrowing Owl Breeding Season Survey Area
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 - CSE Facility
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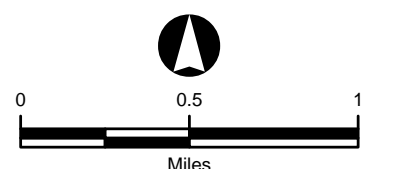
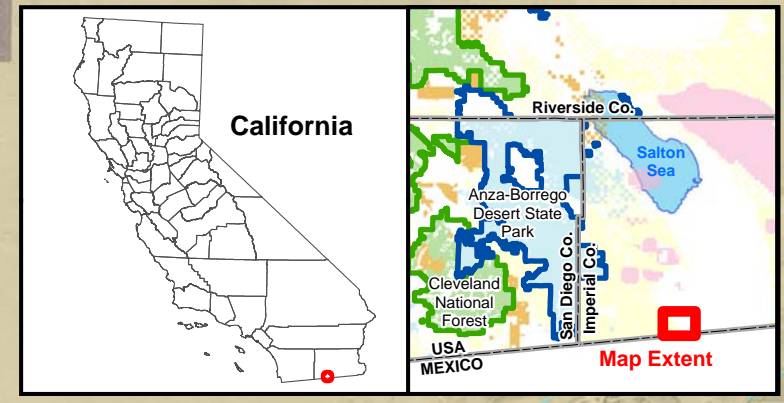
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Figure 4b Active Burrows - 2009/2010 Winter Season



Legend

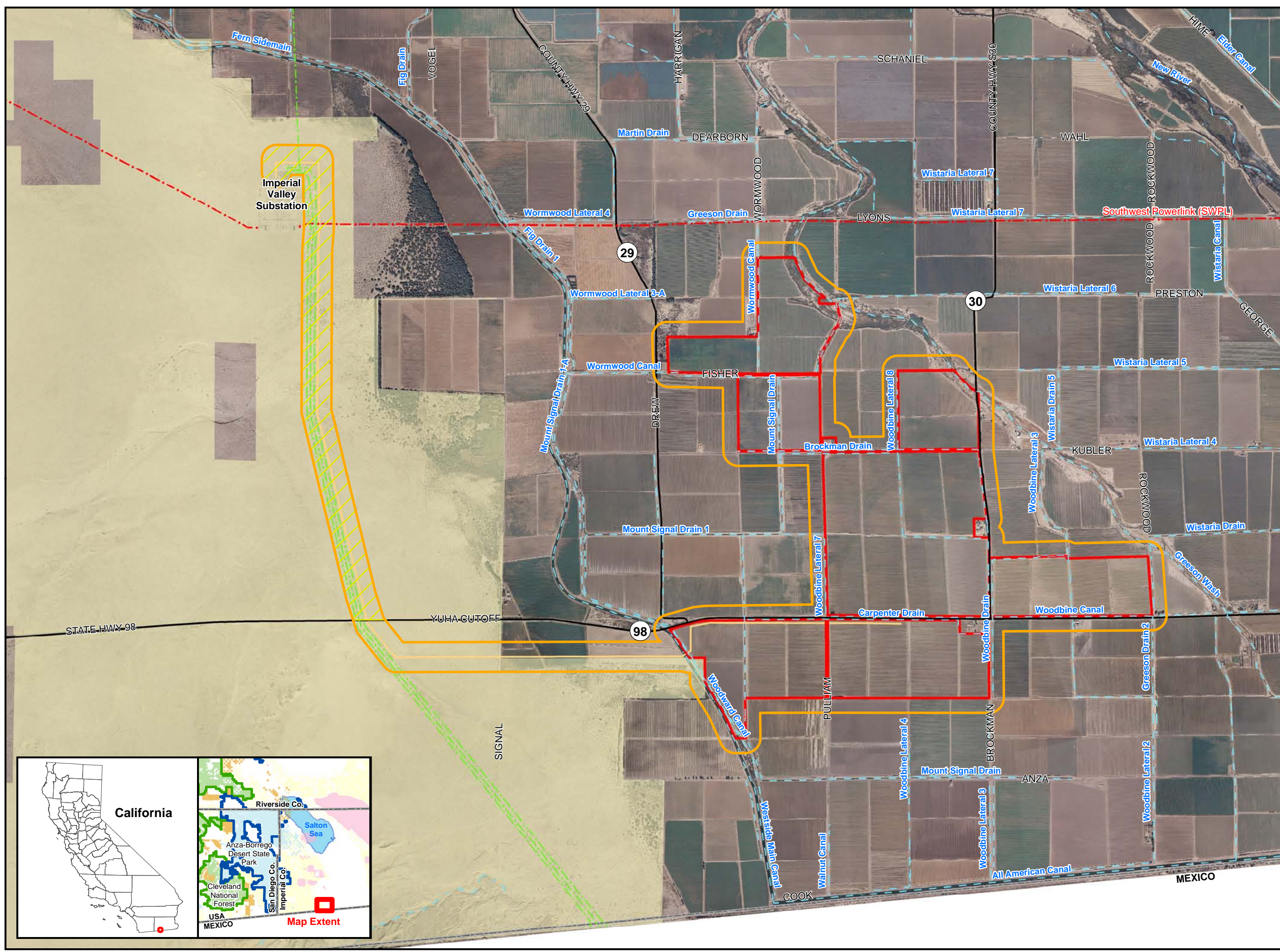
- Active Burrow within CSE Facility
 - Active Burrow within CSE Facility 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
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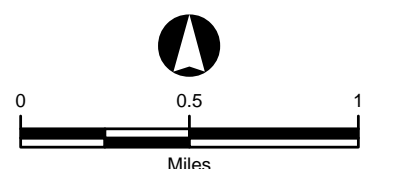
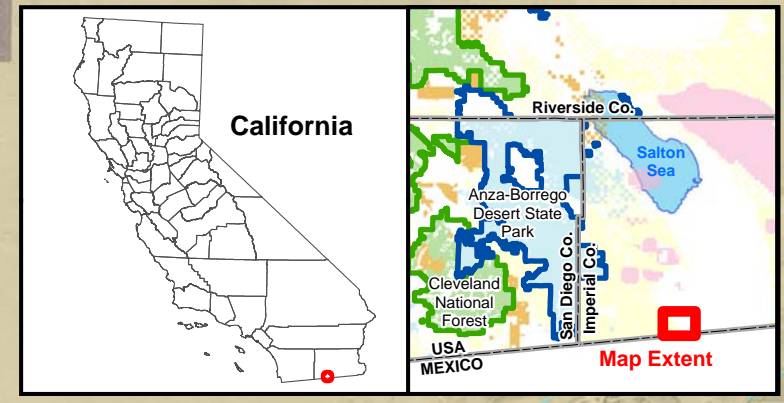
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Figure 4c Active Burrows - 2010 Breeding Season



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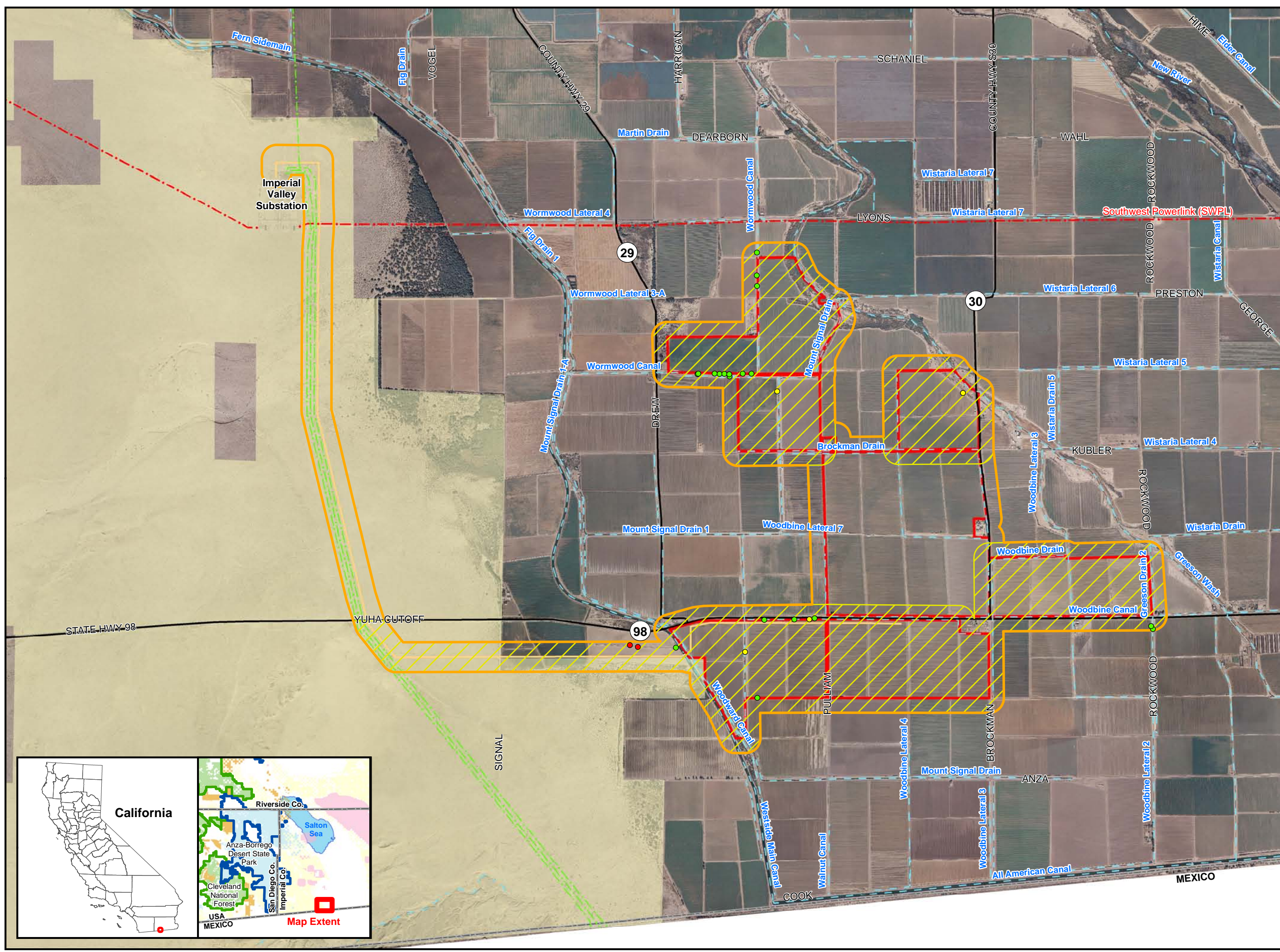
- Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
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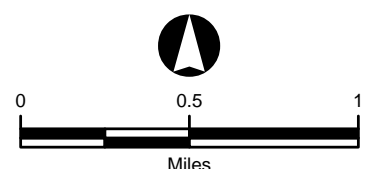
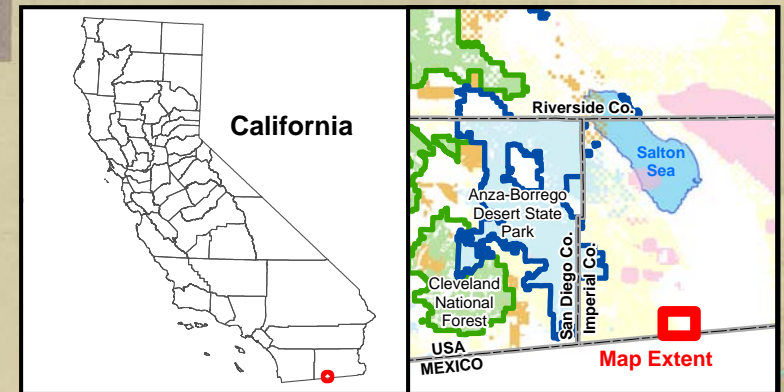
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Figure 4d Active Burrows - 2011 Breeding Season



Legend

- Active Burrow within CSE Facility
- Active Burrow within CSE Facility 500-Foot Buffer
- Active Burrow within Gen-tie 500-Foot Buffer
- Existing 500 kV Transmission Line
- Existing 230 kV Transmission Line
- Gen-tie Line Route
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Selected Photos



Adult Burrowing Owl



Representative active burrow with pellets, scratches, whitewash, and nest debris.



Representative active burrow with prey remains (frog and crayfish), feathers, scratches, nest debris.



Representative active burrow with adult perched above and juvenile in burrow.

7.0 References

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Appendix A – Active and Inactive Burrow Summary

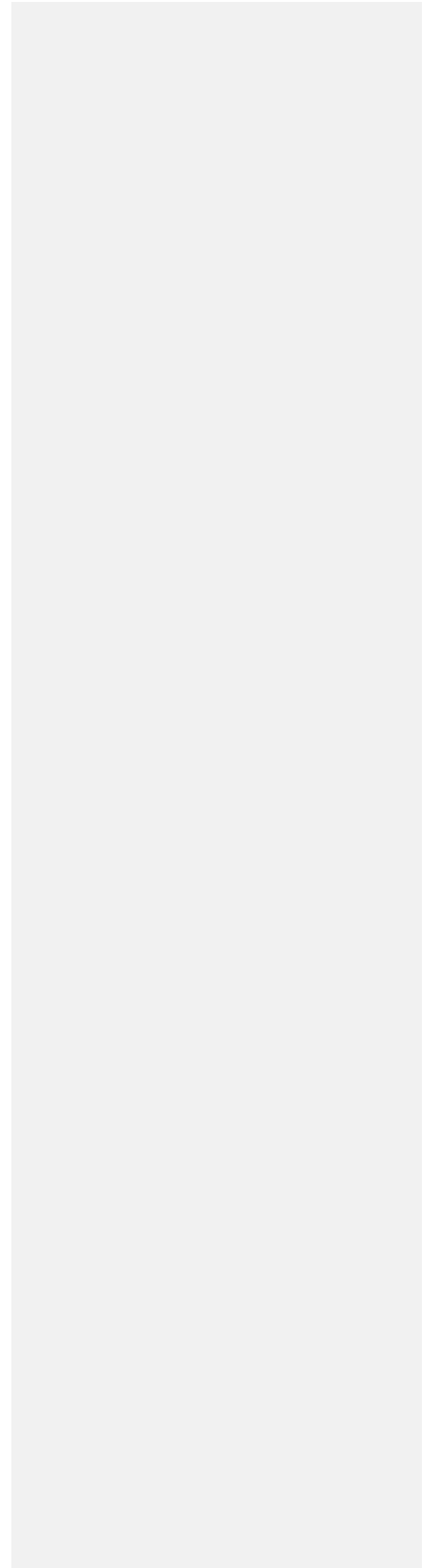
Burrow ID	Project Component	2009 Breeding Season ¹	2009/2010 Winter ¹	2010 Breeding Season ¹	2011 Breeding Season ¹
1	CSE Facility	Active	Active	N/S	N/S
2	500-foot Buffer	N/S	N/S	N/S	Active
3	CSE Facility	N/S	N/S	N/S	Active
4	Gen-tie ROW	N/S	N/S	N/S	Active
5	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
6	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
7	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
8	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
9	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
10	Gen-tie ROW	N/S	N/S	N/S	Active
11	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
12	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
13	Gen-tie ROW	N/S	N/S	N/S	Active
14	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
15	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
16	500-foot Buffer	N/S	N/S	N/S	Active
17	500-foot Buffer	N/S	N/S	N/S	Active
18	CSE Facility	N/S	N/S	N/S	Active
19	500-foot Buffer	N/S	N/S	N/S	Active
20	500-foot Buffer	N/S	N/S	N/S	Active
21	500-foot Buffer	Active	Active	N/S	N/S
22	CSE Facility	Active	Active	N/S	N/S
23	CSE Facility	Active	Active	N/S	N/S
24	500-foot Buffer	Active	Active	N/S	N/S
25	500-foot Buffer	Active	Active	N/S	N/S
26	500-foot Buffer	Active	Active	N/S	N/S
27	500-foot Buffer	Active	Active	N/S	N/S
28	500-foot Buffer	Active	Active	N/S	N/S
29	500-foot Buffer	Active	Active	N/S	N/S
30	500-foot Buffer	Active	Inactive	N/S	N/S
31	500-foot Buffer	Active	Inactive	N/S	N/S
32	500-foot Buffer	Active	Active	N/S	N/S
33	500-foot Buffer	Active	Active	N/S	N/S
34	500-foot Buffer	Active	Inactive	N/S	N/S
35	500-foot Buffer	Active	N/S	N/S	N/S
36	500-foot Buffer	Active	N/S	N/S	N/S
37	500-foot Buffer	Active	Inactive	N/S	N/S
38	Gen-tie 500 ft buffer	Active	Inactive	N/S	N/S
39	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
40	CSE Facility	N/S	N/S	N/S	Inactive
41	CSE Facility	N/S	N/S	N/S	Inactive
42	CSE Facility	N/S	N/S	N/S	Inactive
43	CSE Facility	N/S	N/S	N/S	Inactive
44	CSE Facility	N/S	N/S	N/S	Inactive
45	CSE Facility	N/S	N/S	N/S	Inactive
46	500-foot Buffer	N/S	N/S	N/S	Inactive
47	500-foot Buffer	N/S	N/S	N/S	Inactive

Burrow ID	Project Component	2009 Breeding Season¹	2009/2010 Winter¹	2010 Breeding Season¹	2011 Breeding Season¹
48	500-foot Buffer	N/S	N/S	N/S	Inactive
49	500-foot Buffer	N/S	N/S	N/S	Inactive
50	500-foot Buffer	N/S	N/S	N/S	Inactive
51	500-foot Buffer	N/S	N/S	N/S	Inactive
52	500-foot Buffer	N/S	N/S	N/S	Inactive
53	500-foot Buffer	N/S	N/S	N/S	Inactive
54	500-foot Buffer	N/S	N/S	N/S	Inactive
55	500-foot Buffer	N/S	N/S	N/S	Inactive
56	500-foot Buffer	N/S	N/S	N/S	Inactive
57	500-foot Buffer	N/S	N/S	N/S	Inactive
58	500-foot Buffer	N/S	N/S	N/S	Inactive
59	500-foot Buffer	N/S	N/S	N/S	Inactive
60	500-foot Buffer	N/S	N/S	N/S	Inactive
61	500-foot Buffer	Active	Active	N/S	N/S
62	500-foot Buffer	Active	Active	N/S	N/S
63	500-foot Buffer	N/S	N/S	N/S	Active
64	CSE Facility	N/S	N/S	N/S	Active
65	CSE Facility	N/S	N/S	N/S	Active
66	CSE Facility	N/S	N/S	N/S	Active
67	CSE Facility	Active	Inactive	N/S	N/S
68	CSE Facility	Active	Active	N/S	N/S
69	CSE Facility	Active	Active	N/S	N/S
70	CSE Facility	Active	N/S	N/S	N/S
71	CSE Facility	Active	Active	N/S	N/S
72	CSE Facility	N/S	N/S	N/S	Inactive
73	CSE Facility	N/S	N/S	N/S	Inactive
74	CSE Facility	N/S	N/S	N/S	Inactive
75	CSE Facility	N/S	N/S	N/S	Inactive
76	CSE Facility	N/S	N/S	N/S	Inactive
77	CSE Facility	N/S	N/S	N/S	Inactive
78	CSE Facility	N/S	N/S	N/S	Inactive
79	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
80	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
81	Gen-tie ROW	N/S	N/S	N/S	Inactive
82	500-foot Buffer	N/S	N/S	N/S	Inactive
83	500-foot Buffer	N/S	N/S	N/S	Inactive
84	500-foot Buffer	N/S	N/S	N/S	Inactive
85	500-foot Buffer	N/S	N/S	N/S	Inactive
86	500-foot Buffer	N/S	N/S	N/S	Inactive
87	500-foot Buffer	N/S	Inactive	Inactive	N/S
88	500-foot Buffer	N/S	Inactive	Inactive	N/S
89	500-foot Buffer	N/S	Inactive	Inactive	N/S
90	500-foot Buffer	N/S	Inactive	Inactive	N/S
91	500-foot Buffer	N/S	Inactive	Inactive	N/S
92	500-foot Buffer	N/S	Inactive	Inactive	N/S
93	500-foot Buffer	N/S	Inactive	Inactive	N/S
94	500-foot Buffer	N/S	N/S	Inactive	N/S
95	500-foot Buffer	N/S	N/S	Inactive	N/S
96	500-foot Buffer	N/S	N/S	N/S	Active
97	500-foot Buffer	N/S	N/S	N/S	Active
98	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
99	Gen-tie ROW	N/S	N/S	N/S	Inactive
100	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
101	500-foot Buffer	N/S	N/S	N/S	Inactive

Burrow ID	Project Component	2009 Breeding Season¹	2009/2010 Winter¹	2010 Breeding Season¹	2011 Breeding Season¹
102	500-foot Buffer	N/S	Inactive	Inactive	N/S
103	500-foot Buffer	N/S	Inactive	Inactive	N/S
104	500-foot Buffer	N/S	Inactive	Inactive	N/S
105	500-foot Buffer	N/S	N/S	N/S	Inactive
106	500-foot Buffer	N/S	N/S	N/S	Inactive
107	Gen-tie ROW	N/S	N/S	N/S	Inactive
108	Gen-tie ROW	N/S	N/S	N/S	Inactive

¹ N/S – Not Surveyed

APPENDIX 2 – AVIAN SURVEY REPORT



Centinela Solar Energy, LLC Avian Survey Report 2010-2011

July 2011

Prepared for:

*Centinela Solar Energy, LLC
c/o LS Power Development, LLC
5000 Hopyard Road, Suite 480
Pleasanton, California 94588*

Prepared by:

*Heritage Environmental Consultants
2870 Emporia Court
Denver, CO 80238*



Introduction

Centinela Solar Energy, LLC (CSE) proposes to construct, operate, and maintain a solar electric power generating facility in Imperial County, California, approximately eight miles southwest of El Centro, California. The proposed project includes the construction of a photovoltaic (PV) solar electric power generating facility (the “CSE Facility”) on approximately 2,067 acres of private land and an associated electric line (the “Gen-tie Line”) that will cross both private land and federal land managed by the Department of the Interior Bureau of Land Management (BLM), and electrically interconnect the CSE Facility with the Imperial Valley Substation. The CSE Facility and Gen-tie Line are referred to collectively as the CSE Project. The area encompassing the CSE Facility and the Gen-tie Line is referred to herein as the CSE Project Area.

The BLM El Centro Field Office requested that CSE conduct avian use and abundance surveys to provide baseline data to be used in the National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) analysis. The survey methodology was designed specifically for the CSE Project based on the protocol provided and approved by the BLM (BLM 2010).

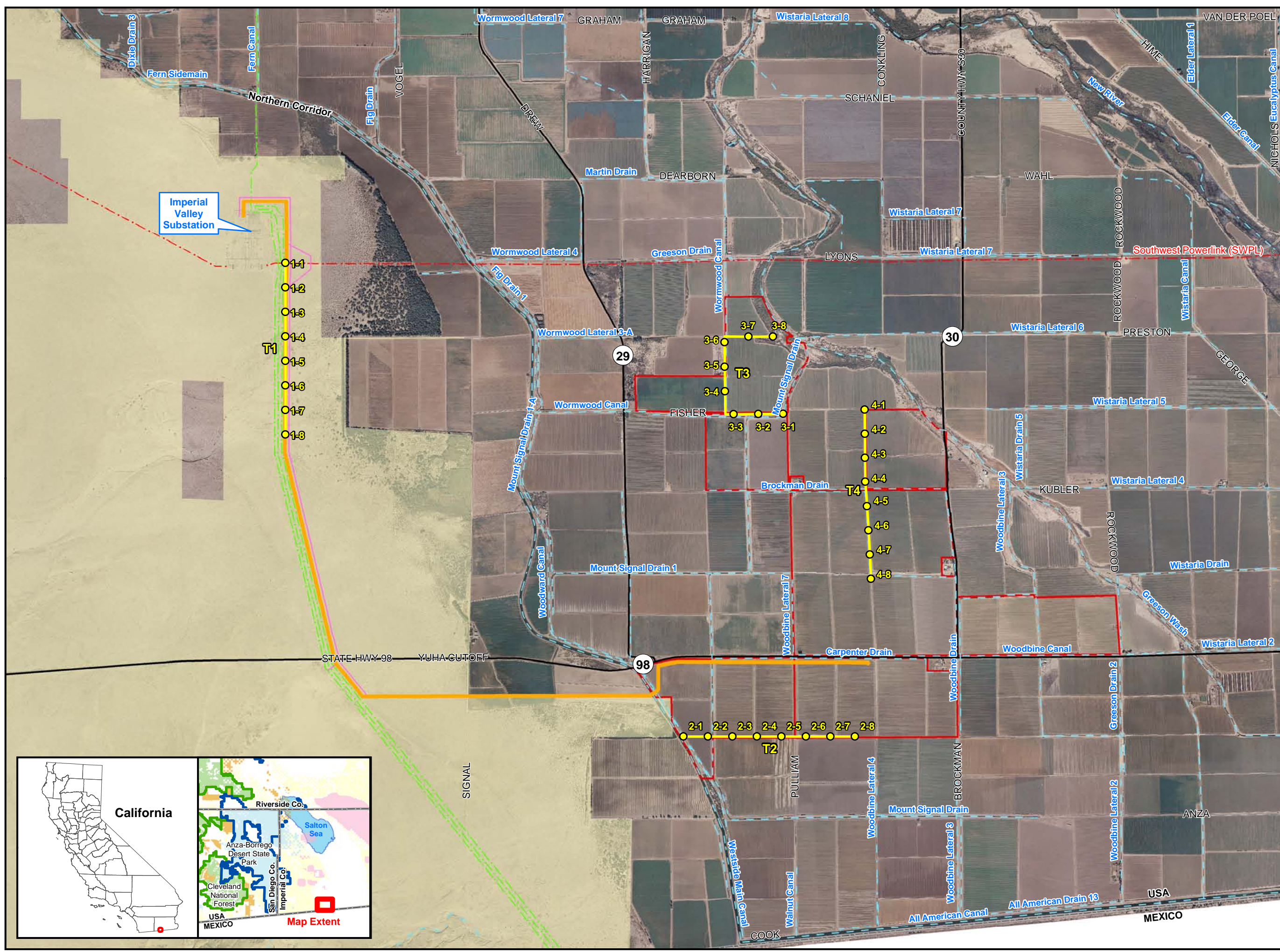
Methods

Avian use surveys were performed by qualified biologists experienced in the identification North American birds by sight and sound. Point-count stations were located along four transects placed throughout the proposed CSE Project Area (**Figure 1**). Transect locations were designed to sample all habitat types present within the CSE Project Area with a focus on areas most likely to contain a high abundance and/or diversity of birds, while maintaining adequate spatial coverage of the entire CSE Facility and proposed Gen-tie Line corridor. Each transect was 1,750-meters in length with point-count locations spaced every 250-meters along transects. A total of 32 point-count stations were sampled during each survey event; with a total of four survey events during the winter survey season (December to January) and four survey events during the spring survey season (March to April).

At each point count station, biologists recorded all birds seen or heard within a 100-meter radius over a 10-minute sampling period. Pairs or groups of birds were recorded as single detections to avoid issues resulting from statistical dependence. Both detections and individuals are reported here. Birds seen or heard outside of the 100-meter radius were recorded as incidental observations and contributed to the overall CSE Project species list, but were excluded from analyses aimed at quantifying avian abundance. Birds that were seen or heard along transects, but between point-count stations, were also recorded as incidental observations. Point counts were generally performed within four hours of sunrise. Surveys were not performed during inclement weather conditions (more than light or intermittent rain, winds greater than 15 miles-per-hour).

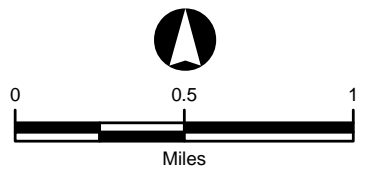
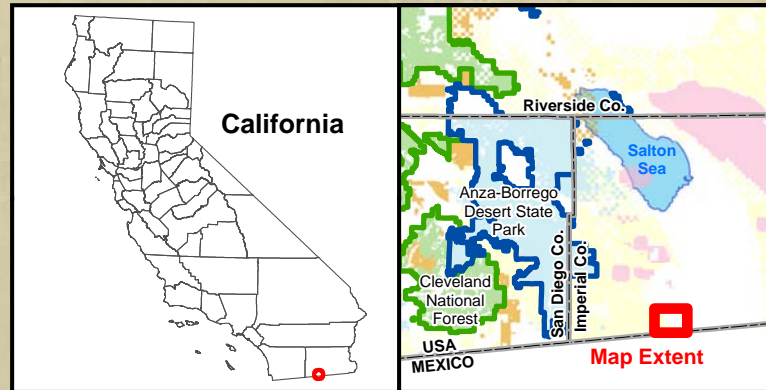
Centinela Solar Energy, LLC

Figure 1 Point-count Station Locations



Legend

- Point-count Station
 - Transects
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Proposed Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

Results

Winter Surveys

Winter survey events occurred on consecutive weeks in December and January (surveys were performed on December 21 and 30, 2010 and January 4 and 11, 2011). A total of 32 points were sampled during each survey event. Weather was generally conducive to avian surveys; temperatures ranged between 35-65° F and winds ranged between 0-12 miles per hours (mph), though were generally less than 5 mph. Surveys began at sunrise each day (~0625) and were completed approximately 4-4.5 hours later (~1025-1100).

A total of 810 detections (6.33 detections per point) and 2,880 individuals (22.5 individuals per point) were recorded during the surveys, comprised of 45 species (**Appendix A**). On average 3.81 species were recorded per point. All metrics remained relatively consistent week to week. **Table 1** presents summary statistics broken down by each survey week.

Table 1 – Summary of Winter Survey Results

Survey Date	Detections	Detections per Point	Individuals	Individuals per Point	Species	Species per Point
December 21, 2010	209	6.53	385	30.78	30	3.72
December 30, 2010	196	6.13	527	16.47	26	3.53
January 4, 2011	224	7.0	976	30.5	27	4.31
January 11, 2011	181	5.66	392	12.25	30	3.69
WINTER TOTAL	810	6.33	2,880	22.5	45	3.81

Western Meadowlark (*Sturnella neglecta*) was the most frequently detected species (264 total detection; 2.06 detections per point) as well as the most widespread, having been observed at 86 points (67.19%). Other frequently detected species include Horned Lark (*Eremophila alpestris*; 16 detections, 0.98 detections per point), Black Phoebe (*Sayornis nigricans*; 47 detections, 0.37 detections per point), Long-billed Curlew (*Numenius americanus*; 40 detections, 0.31 detections per point), and Song Sparrow (*Melospiza melodia*; 32 detections, 0.25 detections per point). Other widespread species include Horned Lark (64 points, 50.0%), Black Phoebe (40 points, 31.25%), and Mourning Dove (*Zenaida macroura*; 30 points, 23.44%). Horned Larks were by far the most numerous species during the survey (747 observed; 25.94% of all individuals observed). Long-billed Curlews were the second most numerous species (492 observed, 17.08% of all individuals observed).

The most common species (as described above) are common agricultural associates. Native habitats (primarily Creosote Bush Scrub and Sonoran Desert Wash) exhibited relatively low avian abundance and diversity when compared to the overall project metrics: 80 detections (2.5 detections per point), 276 individuals (8.63 individuals per point), and 21 total species observed (2.13 species per point). In native habitats, Horned Larks were the most frequently detected (15 detections, 0.47 detections per point) and the most widespread species (11 points, 34.0%). Mourning doves were the most numerous species (96 individuals, 34.8% of all individuals observed).

Three special status species were observed during the surveys (not including California Species of Concern). Burrowing Owl (*Athene cunicularia*), which was previously known to occur and breed in the CSE Project Area, is a State-Endangered species. This species was recorded as an incidental observation during the surveys (this species was not recorded at any point-count stations). Observations of this species during winter surveys further confirm the species' year-round status in and around the CSE Project Area.

Seven Loggerhead Shrikes (*Lanius ludovicianus*), a BLM Sensitive Species, were observed during the surveys. These observations occurred at 6 points (4.69% of all points sampled). All observations of Loggerhead Shrikes occurred in agricultural habitats on private lands.

A Golden Eagle (*Aquila chrysaetos*) was incidentally observed foraging over agricultural habitats associated with the CSE Project Area. This species is protected by the Bald and Golden Eagle Protection act, administered by the U.S. Fish and Wildlife Service. This species was formerly predicted to occur infrequently in and around the CSE Project Area. Suitable nesting habitat does not exist in the Project Area (the nearest suitable nesting habitat is likely associated with Mount Signal, south of the International Border, in Mexico); this species likely forages sporadically over the CSE Project Area.

Spring Survey

Spring survey events occurred on consecutive weeks in March and April (Surveys were performed on March 24 and 30 and April 6 and 13, 2011). A total of 32 points were sampled during each survey event. Weather was generally conducive to avian surveys; Temperatures ranged between 52-82° F and winds ranged between 0-15 miles per hours (mph), though were generally less than 10 mph. Surveys began at sunrise each day (~0600) and were completed approximately 4-4.5 hours later (~1030-1100).

A total of 1,227 detections (9.59 detections per point) and 7,029 individuals (54.9 individuals per point) were recorded during the surveys, comprised of 66 species (**Appendix A**). On average 4.25 species were recorded per point. There was a strong peak in the number of individuals recorded on the March 24, 2011 survey. This was due to large numbers of Red-winged Blackbirds (*Agelaius phoeniceus*), which represented 41.5% of all individuals recorded that week (1,492 individuals). **Table 2** presents summary statistics broken down by each survey week.

Table 2 – Summary of Spring Survey Results

Survey Date	Detections	Detections per Point	Individuals	Individuals per Point	Species	Species per Point
March 24, 2011	279	8.45	1,370	41.52	36	3.82
March 30, 2011	328	9.94	3,597	109.0	38	4.55
April 6, 2011	322	9.76	1,069	32.39	43	4.58
April 13, 2011	298	9.03	993	30.09	34	3.55
Spring TOTAL	1,227	9.59	7,029	54.9	66	4.25

Red-winged Blackbird was the most frequently detected species (413 total detection; 3.23 detections per point). Other frequently detected species include Western Meadowlark (*Sturella neglecta*; 341 detections,

2.66 detections per point), Long-billed Curlew (*Numenius americanus*; 48 detections, 0.38 detections per point), Mourning Dove (*Zenaida macroura*; 40 detections; 0.31 detections per point), Horned Lark (*Eremophila alpestris*; 36 detections, 0.28 detections per point) and Cliff Swallow (*Petrochelidon pyrrhonota*; 32 detections; 0.25 detections per point). Western Meadowlark was the most widespread having been observed at 88 points (68.75%). Other widespread species includes Red-winged Blackbird (86 points, 67.19%), Horned Lark (31 points, 31, 24.22%), Mourning Dove (31 points, 24.22%) Cliff Swallow (26 points, 20.31%), and Long-billed Curlew (*Numenius americanus*; 26 points, 20.31%). Red-winged Blackbirds were by far the most numerous species during the survey (3,835 observed; 54.56% of all individuals observed). Other numerous species included Cattle Egrets (*Bubulcus ibis*; 792 observed, 11.27% of all individuals observed) and Long-billed Curlews (725 observed, 10.31% of all individuals observed).

As was observed in the winter surveys, the most common species were common agricultural associates. Native habitats (primarily Creosote Bush Scrub and Sonoran Desert Wash), which were sampled at least in proportion to availability, exhibited relatively low avian abundance and diversity when compared to the overall project metrics: 130 detections (3.94 detections per point), 255 individuals (7.73 individuals per point), and 30 total species observed (2.97 species per point). In native habitats, Blue-gray Gnatcatchers (*Poliophtila caerulea*) were the most frequently detected (23 detections, 0.69 detections per point) and the most widespread species (16 points, 48.48%). Rock Pigeons (*Columba livia*) were the most numerous species (31 individuals, 12.2% of all individuals observed).

Two special status species were observed during the spring surveys (not including California Species of Concern). Burrowing Owl (*Athene cunicularia*), which was previously known to occur and breed in the Project Area, is a State-Endangered species. This species was recorded as an incidental observation during the surveys (this species was not recorded at any point-count stations).

Two Loggerhead Shrikes (*Lanius ludovicianus*), a BLM Sensitive Species, were observed during the surveys. Both observations occurred at point 1-7 (**Figure 1**) which is located along the proposed Gen-tie route on land managed by the BLM.

Conclusions

Species observed generally conformed to avian communities that have been observed in and around the CSE Project Area during other field efforts and were primarily representative of avian communities typically associated with agricultural habitats. Special status species that were recorded were all species expected or known to occur in and around the CSE Project Area before the winter avian surveys.

Avian abundance and diversity was generally low in the CSE Project Area during the winter surveys, particularly in native habitats, which would be crossed by the proposed Gen-tie line. As expected, avian abundance and diversity were higher during spring surveys. There were 9.59 detections per point during spring compared to 6.33 detections per point during winter. There were 66 species (4.25 species per point) in spring compared to 45 species (3.81 species per point) in winter.

A total of 91 species have been observed in the CSE Project Area including species incidentally observed during the avian surveys as well as other survey efforts (**Appendix A**).

Appendix A – CSE Avian Species List

Common Name	Scientific Name	Recorded During Winter Avian Surveys	Recorded During Spring Avian Surveys	Status ²
American Avocet	<i>Recurvirostra Americana</i>		*	
Abert's Towhee	<i>Pipilo aberti</i>	*	*	
American Coot	<i>Fulica americana</i>			
American Kestrel	<i>Falco sparverius</i>	*	*	
American Pipit	<i>Anthus rubescens</i>		*	
Anna's Hummingbird	<i>Calypte anna</i>	*	*	
Bank Swallow	<i>Riparia riparia</i>		*	
Barn Owl	<i>Tyto alba</i>			
Barn Swallow	<i>Hirundo rustica</i>		*	
Bell's Vireo	<i>Vireo bellii</i>			
Belted Kingfisher	<i>Megaceryle alcyon</i>			
Black Phoebe	<i>Sayornis nigricans</i>	*	*	
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>			
Black-necked Stilt	<i>Himantopus mexicanus</i>		*	
Black-tailed Gnatcatcher	<i>Polioptila melanura</i>		*	
Blue Grosbeak	<i>Passerina caerulea</i>			
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	*	*	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	*	*	
Brown-headed Cowbird	<i>Molothrus ater</i>		*	
Burrowing Owl	<i>Athene cunicularia</i>			SE, SS
California Gull	<i>Larus californicus</i>		*	
Canada Goose	<i>Branta canadensis</i>	*		
Cattle Egret	<i>Bubulcus ibis</i>	*	*	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>		*	
Common Ground Dove	<i>Columbia passerina</i>	*	*	
Common Moorhen	<i>Gallinula chloropus</i>		*	
Common Raven	<i>Corvus corax</i>	*	*	
Common Yellowthroat	<i>Geothlypis trichas</i>		*	
Cooper's Hawk	<i>Accipiter cooperii</i>			
European Starling	<i>Sturnus vulgaris</i>	*	*	
Gambel's Quail	<i>Callipepla gambelii</i>	*	*	
Glossy Ibis	<i>Plegadis falcinellus</i>		*	
Golden Eagle	<i>Aquila chrysaetos</i>			BGEPA, SC
Great Blue Heron	<i>Ardea herodias</i>	*		
Great Egret	<i>Ardea alba</i>	*	*	
Great-tailed Grackle	<i>Quiscalus mexicanus</i>		*	
Greater Roadrunner	<i>Geococcyx californianus</i>		*	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	*	*	

Common Name	Scientific Name	Recorded During Winter Avian Surveys	Recorded During Spring Avian Surveys	Status ²
Green Heron	<i>Butorides virescens</i>			
Hermit Warbler (C) ¹	<i>Dendroica occidentalis</i>			
Horned Lark	<i>Eremophila alpestris</i>	*	*	
House Finch	<i>Carpodacus mexicanus</i>		*	
Killdeer	<i>Charadrius vociferus</i>	*	*	
Lark Bunting	<i>Calamospiza melanocorys</i>		*	
Lark Sparrow	<i>Chondestes grammacus</i>	*	*	
Lesser Nighthawk	<i>Chordeiles acutipennis</i>			
Loggerhead Shrike	<i>Lanius ludovicianus</i>	*	*	SS, SC
Long-billed Curlew	<i>Numenius americanus</i>	*	*	
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>			
Macgillivray's Warbler	<i>Oporornis tolemiei</i>		*	
Mallard	<i>Anas platyrhynchos</i>	*	*	
Mourning Dove	<i>Zenaida macroura</i>	*	*	
Northern Flicker	<i>Colaptes auratus</i>	*		
Northern Harrier	<i>Circus cyaneus</i>	*	*	
Northern Mockingbird	<i>Mimus polyglottos</i>	*		
Northern Rough-winged Swallow	<i>Stelgidpteryx serripennis</i>		*	
Prairie Falcon	<i>Falco mexicanus</i>	*	*	SC
Purple Martin	<i>Progne subis</i>		*	
Red-necked Phalarope	<i>Phalaropus lobatus</i>			
Red-tailed Hawk	<i>Buteo jamaicensis</i>	*	*	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	*	*	
Ring-necked Pheasant	<i>Phasianus colchicus</i>		*	
Rock Dove	<i>Columbia livia</i>	*	*	
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>	*	*	
Sandhill Crane	<i>Grus canadensis</i>			
Savannah Sparrow	<i>Passerculus sandwichensis</i>	*	*	
Say's Phoebe	<i>Sayornis saya</i>	*	*	
Snowy Egret	<i>Egretta thula</i>	*	*	
Song Sparrow	<i>Melospiza melodia</i>	*	*	
Turkey Vulture	<i>Cathartes aura</i>	*	*	
Unidentified Bird	<i>Aves sp.</i>	*	*	
Unidentified Empidonax Flycatcher	<i>Empidonax sp.</i>	*	*	
Unidentified Gnatcatcher	<i>Poliptila sp.</i>		*	
Unidentified Hummingbird	<i>Trochilidae sp.</i>	*	*	
Unidentified Sparrow	<i>Eberizidae sp.</i>	*	*	
Unidentified Warbler	<i>Parulidae sp.</i>		*	
Verdin	<i>Aurparus flaviceps</i>	*	*	

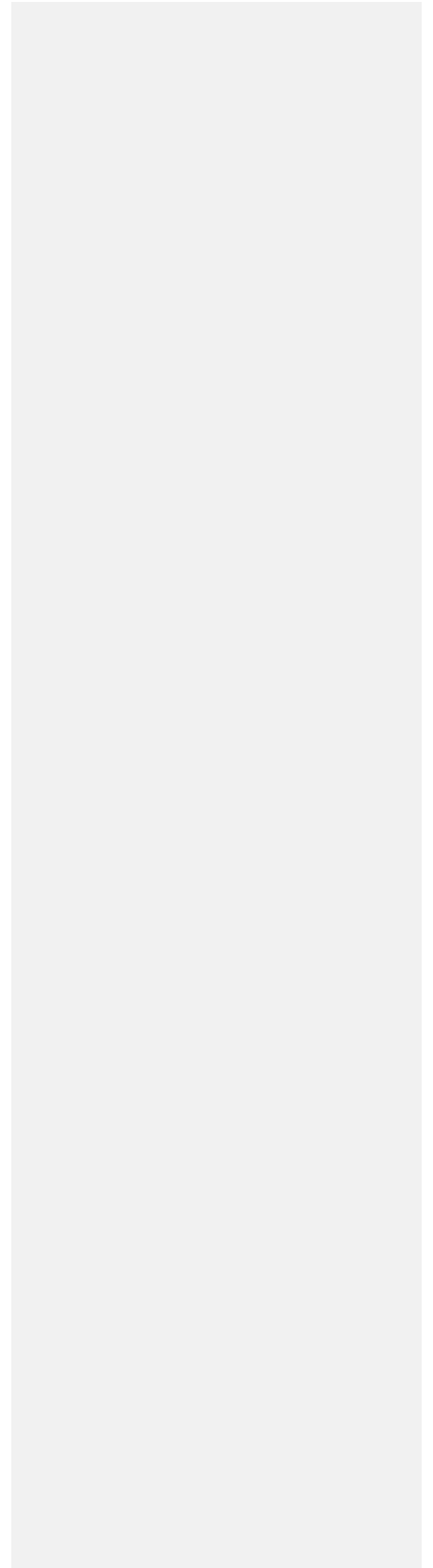
Common Name	Scientific Name	Recorded During Winter Avian Surveys	Recorded During Spring Avian Surveys	Status ²
Violet-green Swallow	<i>Tachycineta thalassina</i>		*	
Western Bluebird	<i>Sialia mexicana</i>	*		
Western Kingbird	<i>Tyrannus verticalis</i>		*	
Western Meadowlark	<i>Sturnella neglecta</i>	*	*	
Western Sandpiper	<i>Calidris mauri</i>			
Western Tanager	<i>Piranga ludoviciana</i>			
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>		*	
White-faced Ibis	<i>Plegadis chihi</i>		*	
White-throated Swift	<i>Aeronautes saxatalis</i>		*	
White-winged Dove	<i>Zenaida asiatica</i>		*	
Willow Flycatcher (Southwestern)	<i>Empidonax trailii extimus</i>			FE, SE
Wilson's Snipe	<i>Gallinago delicata</i>	*		
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>			
Yellow-rumped Warbler (Audubon's)	<i>Dendroica coronata auduboni</i>	*	*	

Footnotes

¹(C) = Only carcass observed

²BGEPA = Protected under the Bald and Golden Eagle Protection Act; SC = CDFG Species of Concern, SE = State-endangered; SS = BLM Sensitive Species; FE = Federally-endangered; All species, except Rock Dove and European Starling, are protected under the Migratory Bird Treaty Act.

**APPENDIX 3 – FLAT-TAILED HORNED LIZARD
SURVEY REPORT**



CENTINELA SOLAR ENERGY, LLC
FLAT-TAILED HORNED LIZARD
SURVEY REPORT

Prepared for:
Centinela Solar Energy, LLC

Prepared by:
Heritage Environmental Consultants, LLC

September 15, 2010

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1.0 Introduction

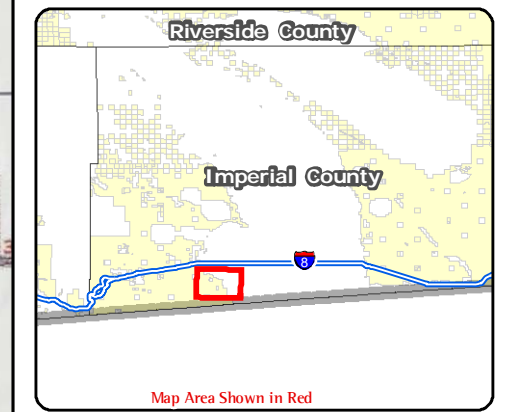
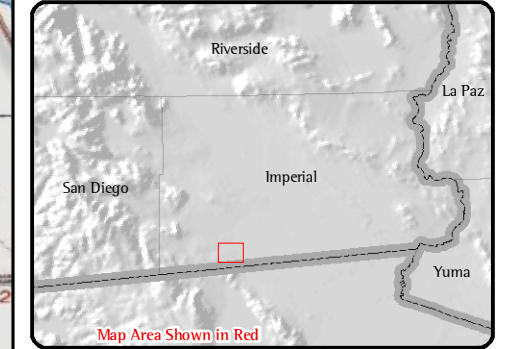
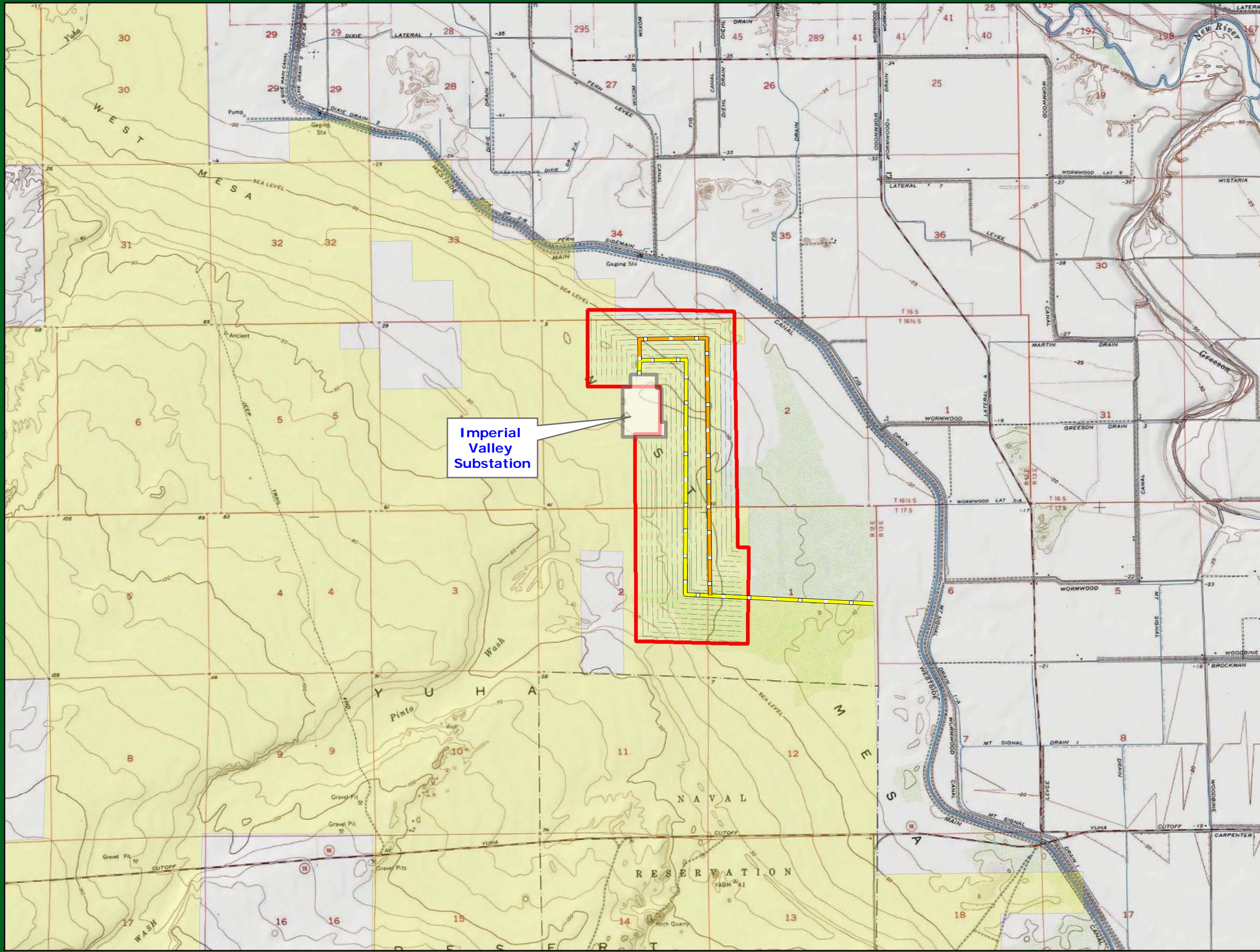
The flat-tailed horned lizard (*Phrynosoma mcallii*) is a small desert lizard with extremely limited distribution, inhabiting a small portion of southwestern Arizona, southeastern California and adjacent portions of Sonora and Baja California, Mexico. The flat-tailed horned lizard (FTHL) is typically found in areas with deposits of fine-grained, wind-blown sand, but has also been recorded from habitats lacking such sandy deposits. The species' distribution historically included much of the Lower Colorado River Valley subdivision of the Sonoran Desert, but has recently been much reduced. Pressure from agricultural and residential development, off-highway vehicle use, highways, canals, railroads, military activities, utilities, predation, energy and mineral extraction, landfills, exotic plants, and pesticide use has resulted in the loss of up to 49% of the species' historical range (FTHLICC 2003).

Centinela Solar Energy, LLC (CSE), is proposing to build, operate and maintain a single-circuit, 230kV aboveground electric line (referred to as the "Gen-tie Line") that will link CSE's proposed photovoltaic (PV) electricity generating plant located on private land in Imperial County with the nearby Imperial Valley Substation, which is located entirely on lands managed by the Bureau of Land Management (BLM). As proposed, the preferred Gen-tie Line will cross approximately 2.5 miles of private property and 2.3 miles of federal lands managed by the BLM. CSE has submitted an SF299 application requesting a Right-of-Way (ROW) from the BLM. Where practicable, the Project will follow existing linear features (e.g. roads, utility lines) in order to minimize impacts. In addition, an alternate route for the Gen-tie line has been proposed in case site-specific conditions (such as restrictions and the ability to cross existing electric lines) require changes to the proposed routing. The portion of the Gen-tie Line to be located on BLM land, and the alternate route, are referred to herein as the "Project."

The proposed Project would cross approximately 2.3 miles of suitable and known occupied FTHL habitat on lands administered by the BLM (**Figure 1**). This land is part of the Yuha Desert FTHL Management Area. The U.S. Fish and Wildlife Service (USFWS) recently reinstated its proposal to list the FTHL as threatened under the Endangered Species Act of 1973, as amended (Act; Federal Register, Vol. 57, No. 40, March 2, 2010). Should the FTHL become listed under the Act, the BLM would need to consult with the USFWS under Section 7 of the Act to analyze potential impacts to this species prior to approving any development or activity on BLM-managed lands. As part of the Section 7 consultation process, the USFWS would issue a Biological Opinion and could issue an incidental take permit if it is determined that the project "may affect" FTHL.

In order to better understand FTHL occupancy in and around the proposed Project, surveys for the species were performed in May 2010 by qualified biologists following a BLM-approved protocol. The following sections describe the methodology used to conduct the survey and the results of the survey.

Figure 1.
Project Location and
Topography
Centinela Solar Energy Project



Legend

- Study Area
- BLM Managed Lands
- Flat-tailed Horned Lizard Transsects

Proposed Primary and Alternate Route

- Alternate Route
- Primary Route

Data Sources include , NRC, Calgov, USGS 1:120K Topography.

State Plane Coordinate System
 California Zone 6, NAD 83
 Lambert Conformal Conic Projection
 1983 North American Datum
 Linear Unit: Foot US

09/12/2010

The information presented in this map document is advisory and is intended for reference purposes only.

2.0 Methods

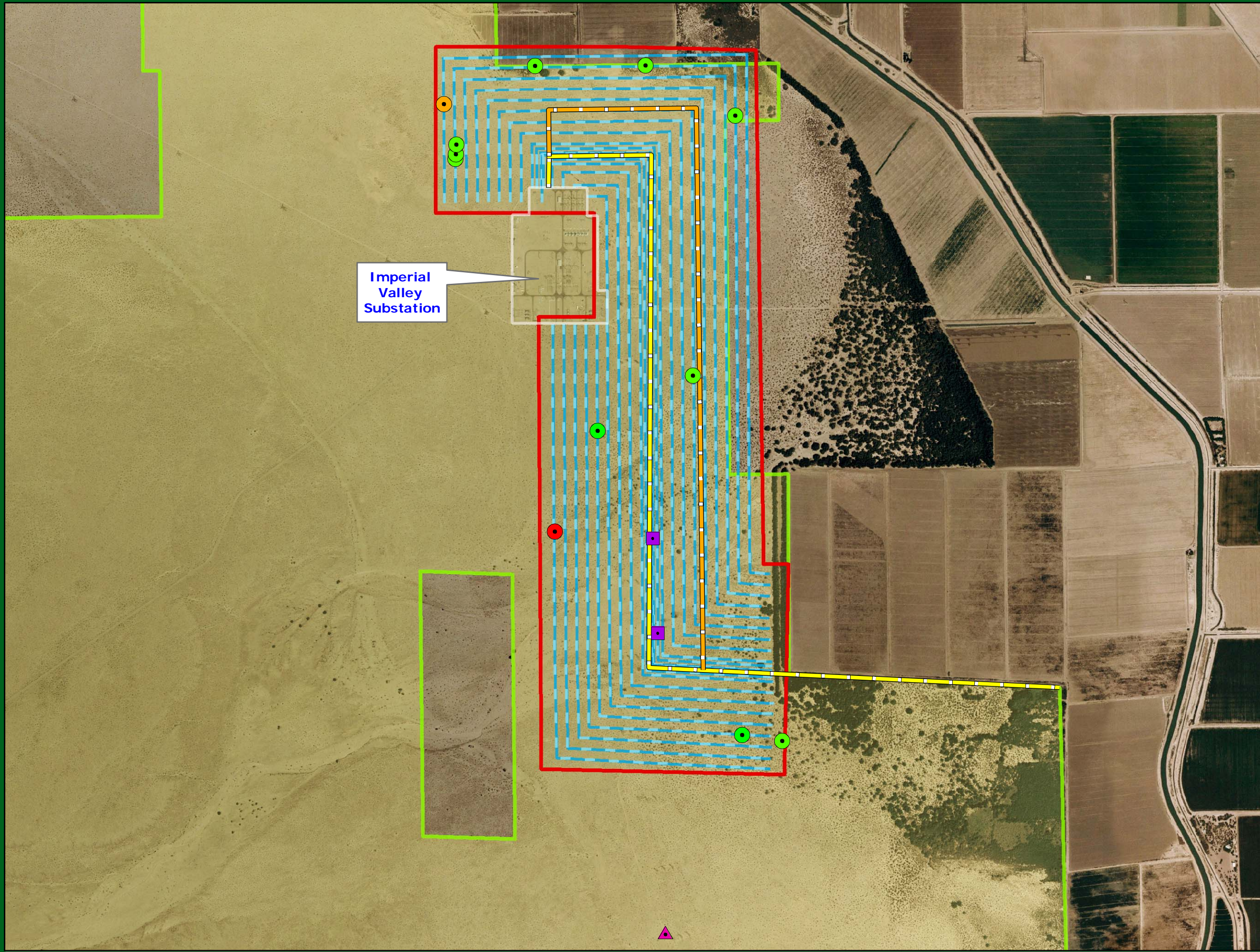
A proposed protocol for the survey was developed based on the *Flat-tailed horned Lizard Rangewide Management Strategy; 2003 Revision* and protocols described in the *SES Solar Two Project Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment*. This protocol was submitted to the BLM for review on April 19, 2010, and BLM provided its verbal approval on a telephone call on April 26, 2010 (Trouette 2010).

Pedestrian transects were established parallel with the centerline of CSE's proposed Project corridor (Primary Route on **Figure 1**) (approximately 150 feet [46 meters] wide) as well as within a Zone-of-Influence (ZOI) that covers the proposed alternative route. The ZOI extended to 450 meters on either side of the centerline of the proposed Project corridor. The ZOI was defined based on the maximum territory size measured for the species (59.2 hectares; NatureServe 2005), which translates to a territory radius of approximately 434 meters. By extending the ZOI to 450 meters, individual lizards occurring outside the Project corridor during surveys but whose territories potentially overlap the project area would be accounted for under this methodology. Transects were established within the Primary Route at 5 and 25 meters on either side of the centerline. Transects were spaced at 50 meter intervals in the ZOI (with the first transect being 45 meters from the centerline and the most distant transect being 445 meters from the centerline). Thus, a total of 4 parallel transects were surveyed within the Primary Route and 18 parallel transects were surveyed within the ZOI. Surveyors visually inspected the ground on either side of the transect out to 5 meters; if sign were observed, surveyors followed the sign (tracks) or searched for other sign outside of the 10-meter wide transects. The transect layout provided approximately 66% coverage in the Primary Route corridor and approximately 21% coverage in the ZOI. See **Figure 2** for the transect layout.

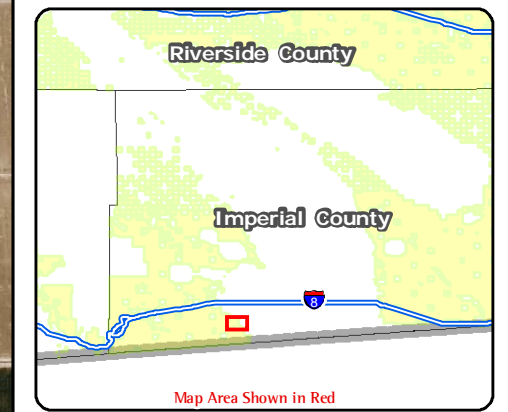
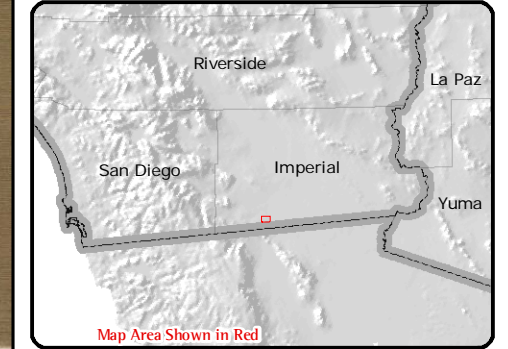
Surveyors walked no faster than 2 miles per hour during surveys. Surveyors searched the ground on either side of the transect for individual FTHL or FTHL sign (tracks or scat). Any observations of individuals or sign were recorded using a handheld global positioning system (GPS) unit. When tracks were observed, the transect was suspended and the tracks were followed in an attempt to locate an individual. Photographs of FTHL sign and representative habitat were taken (**Appendix A – Representative Photographs**).

General descriptions of habitats present in and around the project area were made. Habitat descriptions included characterization of the floristic and structural components of vegetative cover types, description of soils present, and wildlife incidentally observed using the habitat. Habitat descriptions were made for all major habitat types present in the project area.

Figure 2.
Transects and Routes
Centinela Solar Energy Project



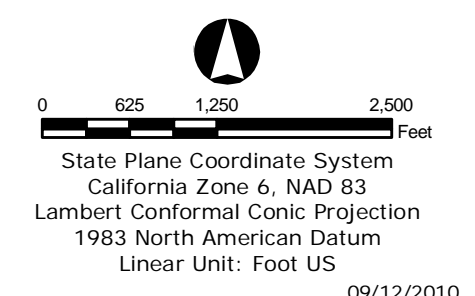
Imperial Valley Substation



Legend

- Study Area
- Proposed Primary and Alternate Route**
- Primary Route
- Alternative Route
- Flat-tailed Horned Lizard Survey Results**
- 1 FTHL Scat Found
- 3 FTHL Scats Found
- 5 FTHL Scats Found
- Possible FTHL Tracks
- ▲ FTHL Observation
- Flat-tailed Horned Lizard Transects
- BLM-Managed Lands

Data Sources include: NRC, Calgov, Heritage Environmental Consultants
 Imagery - NAIP 2006



09/12/2010

The information presented in this map document is advisory and is intended for reference purposes only.

3.0 Results

Surveys were performed from 5-7 May, 2010. Temperatures ranged from approximately 75°F to 95°F during the surveys. Weather was consistently sunny with wind at or below 10 miles per hour.

Habitats in the study area were variable, but the area was generally dominated by creosote (*Laria tridentata*) and *atriplex* spp. Soils in much of the study area were comprised of a thin layer of fine-grained windblown sand over hard-pan. Portions of the study area were characterized by evidence of ephemeral water flow. These areas had larger stabilized dunes topped with mesquite (*Prosopis* sp.) as well as a greater density of smoketree (*Psorothamnus spinosus*) and other xeroriparian species. The northern portions of the study area tended to have less windblown sand and sparser vegetation. Soils in these areas ranged from hard-pan silts to coarser gravels and large grained sand. Much of the study is highly disturbed. Off-road vehicle tracks, litter, and infrastructure associated with existing transmission lines and the sub-station were present throughout much of the study area. The area is also regularly patrolled by the U.S. Border Patrol, resulting in regular “off-road” travel.

A total of 14 observations of potential FTHL sign were recorded during the surveys: 12 FTHL scats (1-5 scats per record) and 2 potential FTHL tracks. The tracks were not definitively FTHL tracks because they were not fresh and the margins were blurred. No FTHL individuals were observed during the FTHL surveys. **Table 1** summarizes these observations.

Table 1 – Observations of FTHL and FTHL Sign

Date	Observation
5/4/2010	Possible FTHL tracks on side of stabilized dune.
5/5/2010	Possible FTHL tracks in sandy area.
5/6/2010	FTHL scat in disturbed area of compacted soils with gravels.
5/6/2010	FTHL scat in flat area with thin layer of coarse sand over hardpan.
5/6/2010	FTHL scat in flat area with thin layer of coarse sand over hardpan.
5/6/2010	FTHL scat in flat area with thin layer of coarse sand over hardpan.
5/6/2010	FTHL scat on road between berm and agricultural fields.
5/6/2010	FTHL scat on road between berm and agricultural fields.
5/6/2010	FTHL scat at ecotone between dense brush and sandy creosote scrub.
5/6/2010	3 FTHL scats on hardpan soils with shallow sandy layer.
5/7/2010	FTHL scat in area of hardpan with scattered creosote.
5/7/2010	FTHL scat on hardpan soils with scattered sandy hummocks.
5/7/2010	FTHL scat on sandy hummock.
5/7/2010	5 FTHL scats on hardpan soils with scattered sandy hummocks.

Habitats in which observations were located were variable. FTHL sign was not limited to the sandiest portions of the study area, and FTHL sign was found in disturbed areas in several instances (e.g. on an existing road), often times in areas with compacted and/or gravelly soils. Although no individuals were observed during the FTHL survey, one FTHL individual was observed on July 5, 2010 on the margin of the existing transmission line access road approximately 0.5 miles south of the southern-most ZOI transect.

4.0 Conclusion

Flat-tailed horned lizard density in the study area appeared to be low. No individuals and only 14 observations of FTHL sign were recorded over the course of approximately 48 miles of transects. FTHL sign in the study area were not limited to the most highly suitable habitats, and in several instances, sign was observed in disturbed habitats. Thus, the entire survey area can be considered as potentially occupied, although at low densities compared to areas with greater expanses of higher-quality habitat.

Direct impacts to FTHL during construction of the Project may occur as a result of displacement or mortality. It is recommended that a qualified FTHL monitor be onsite during all construction activities taking place within the study area used for this survey. A FTHL monitor would survey the area immediately before construction activities take place and move any FTHL individuals that could be impacted by construction activities.

Project impacts would occur within the Yuha Desert Management Area (MA); therefore, the project proponent would be required to provide habitat compensation based on the acreage of FTHL habitat lost from project impacts on the MA land after all reasonable on-site mitigation has been applied. Compensation for habitat lost inside a FTHL MA will be applied using the FTHL Rangewide Management Strategy.

CSE is aware of the need to minimize disturbance to FTHL habitat in the Yuha Desert MA. Therefore, although the Project needs only a single-circuit electric line to connect the solar site to the IV Substation, the Applicant is open to discussing with the BLM the potential to install towers that could accommodate an additional high-voltage electric line in order to minimize construction and permanent impacts. This would allow any subsequently (or concurrently) approved requests for an electric line in the same corridor to use these facilities and avoid additional impacts from new construction. Further, FTHL habitat in sections of the Project that is currently negatively impacted by tamarisk could be improved because the tamarisk will be removed and the areas restored with native vegetation following construction.

5.0 References

- Bureau of Land Management and California Energy Commission. 2010. Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Amendment, SES Solar Two Project, Application for Certification (08-AFC-5). February, 2010. CEC-700-2010-002-SA-DEIS.
- Flat-tailed Horned Lizard Interagency Coordinating Committee (FTHLICC). 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 78pp.
- NatureServe. 2005. Flat-tailed Horned Lizard Species Account. Available online at: http://www.natureserve.org/explorer/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&e Accessed: 4/12/2010.
- Trouette, A. 2010. Personal communication [*April 26* telephone conversation with Patrick Golden, Heritage Environmental Consultants, Denver, Colorado. *RE: FTHL Proposed Survey Protocol*]. Biologist, Bureau of Land Management, El Centro Field Office, El Centro, California.

Appendix A – Representative Photographs



Possible FTHL Tracks



FTHL Scat

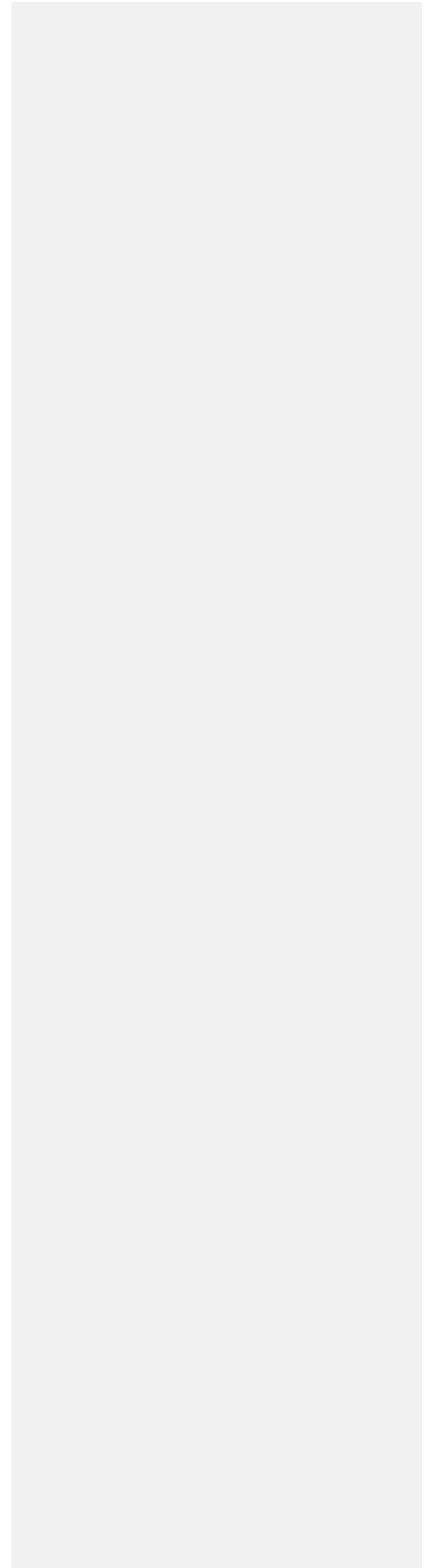


Representative creosote bush habitat.



Representative xeroriparian habitat.

APPENDIX 4 – RARE PLANT SURVEY REPORT



Centinela Solar Energy, LLC Imperial County, California Special Status Plant Survey Report

Prepared for:

*Centinela Solar Energy, LLC
c/o LS Power Development, LLC
5000 Hopyard Road, Suite 480
Pleasanton, California 94588*

Prepared by:

*Heritage Environmental Consultants, LLC
2870 Emporia Court
Denver, Colorado 80238*

July 2011

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Table 2	Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

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Figure 1	Project Location
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1.0 Introduction

Centinela Solar Energy, LLC (CSE) proposes to construct, operate, and maintain a solar electric power generating facility in Imperial County, California, approximately eight miles southwest of El Centro, California. The proposed project includes the construction of a photovoltaic (PV) solar electric power generating facility (the “CSE Facility”) on approximately 2,067 acres of private land and an associated electric line (the “Gen-tie Line”) that will cross both private land and federal land managed by the Department of the Interior Bureau of Land Management (BLM), and electrically interconnect the CSE Facility with the Imperial Valley Substation. The CSE Facility and Gen-tie Line are referred to collectively as the CSE Project. The area encompassing the CSE Facility and the Gen-tie Line is referred to herein as the CSE Project Area.

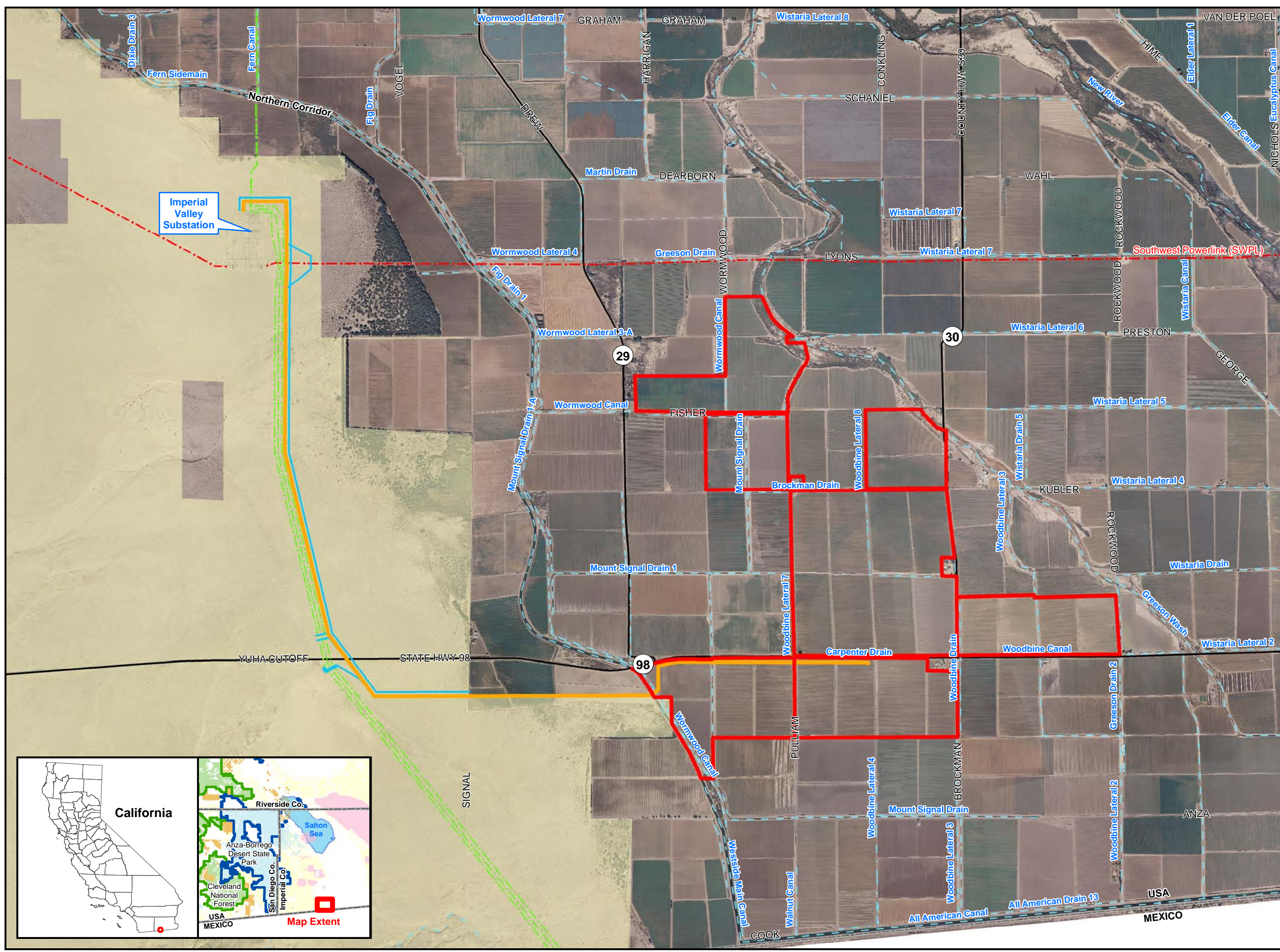
The Gen-tie Line will originate at the CSE Facility substation, located within the CSE Facility immediately south of Highway 98 and approximately ½ mile east of Pulliam Road, and extend approximately 1.5 miles generally west through the CSE Facility site. From the western boundary of the CSE Facility site, the Gen-tie Line would extend across the West Side Main Canal and continue approximately 1.25 miles through private agricultural lands south of Highway 98. The remaining approximately 4.25 miles extends through federal lands managed by the Bureau of Land Management (BLM), first west then north, to connect with the Imperial Valley Substation (**Figure 1**). The proposed right-of-way (ROW) width on lands managed by BLM is 125 feet.

The purpose of the surveys was to identify special status plants or suitable habitats on or near the CSE Project Area in native habitats (i.e., the vicinity of the proposed Gen-tie Line and potential alternatives on federal land managed by the BLM). Special status plant surveys for the CSE Project were conducted during several seasons in accordance with BLM guidance (March 2009; November 2010; March and April 2011). This report documents the results of these surveys.

For a description of habitats occurring on private lands in the CSE Project Area and the associated vegetation map for these non-BLM lands, refer to *Centinela Solar Energy, LLC Habitat Assessment and Rare Plant Surveys* report (Heritage 2010).

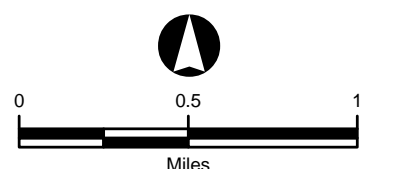
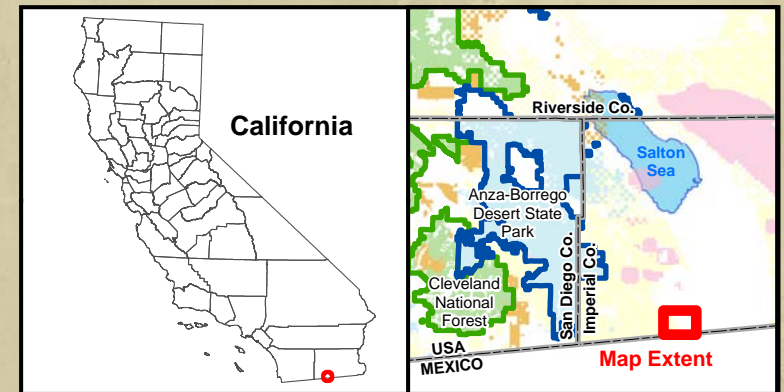
Centinela Solar Energy, LLC

Figure 1 Project Location



Legend

- Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

2.0 Survey Area

Surveys were conducted on areas of native habitat within federal lands managed by the BLM in the vicinity of the proposed Gen-tie Line and potential alternatives. The survey area is shown in **Appendix A - Figure 2** and included the proposed and alternative Rights-of-Way (125 feet each) and adjacent buffer areas on BLM lands (an additional 350 feet minimum from the eastern edge of the alternative corridors).

The survey area was a minimum 600 feet wide and was 1,050 feet at the widest point (**Appendix A – Figure 2**). An additional wedge-shaped area was surveyed east of the Imperial Valley Substation (“IV Substation”) at the intersection of the proposed Gen-tie Line corridor and the existing 500-kV SWPL line to account for potential deviations of the corridor to the east to allow for the undercrossing of the SWPL. Gen-tie Line Alternative 5 (Utilize Existing Electric Line Towers and 230-kV Line Looping) includes new proposed tower structures that would be constructed to undercross the existing 230-kV transmission lines just south of Highway 98. Alternative 6 includes new proposed tower structures that would be constructed to undercross the existing 230-kV lines just north of Highway 98. These undercrossing areas were evaluated during the resource surveys for the Imperial Solar Energy Center South Project (RECON 2010) and CSE project surveys; therefore, the survey area and results for the Alternative 5 undercrossing area presented in this report are from the RECON 2010 data and CSE surveys. South of Highway 98 on the east-west Gen-tie Line segment to Mount Signal Road, the survey area was approximately 600 feet wide and was centered on the proposed centerline.

3.0 Methodology

Surveys were conducted for BLM special status plants that could possibly occur on BLM lands within the survey area. BLM special status plants are defined as those plant taxa that are:

1. Federally listed as threatened or endangered, proposed for Federal listing, or candidates for Federal listing;
2. listed as endangered, threatened or rare by the California Department of Fish and Game (CDFG 2011a);
3. BLM sensitive species
4. List 1B species on the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (2011).
5. California Natural Diversity Data Base (CNDDDB) special plants

BLM is a party to a Memorandum of Understanding (MOU) with the CDFG to provide species occurrence information for inclusion in the California Natural Diversity Data Base (CNDDDB). In addition to inventorying for plants formally recognized as special status species by BLM, inventories for all plant, fungi and lichen species recognized as "special" by the CNDDDB is also required (CDFG 2011b). Plant taxa surveyed for included those considered special status species by the BLM.

Prior to field surveys, reported locations of special status plant species and species recognized as special by the CNDDDB were obtained from the CNDDDB RareFind, CNPS's Inventory, a literature review of recent surveys conducted in the vicinity of the CSE Project, and conversations with BLM staff (Andrew Trouettepers comm.). Reports that were reviewed included the Imperial Solar Energy Center South Project (RECON 2010) and the Imperial Valley Solar Project (URS 2010).

Field surveys were conducted following the *Survey Protocols required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009). The field surveys most closely resembled the Complete Survey Methodology outlined in the BLM protocols. The entire survey area (**Appendix A - Figure 2**) on the lands managed by the BLM were examined using transects.

Approximate 30-meter transects were walked within each corridor (preferred and alternative) parallel to the long axis of each corridor. The openness of most of the vegetation allowed for excellent visual coverage of the area between transects by the surveyors. Tighter transects were walked at structure locations (estimated size 160' x 160'), pulling and tensioning sites (estimated size 500' x 160'), and wire splicing sites (estimated size 400' x 160'). Feature dimensions were based on the CSE POD map set (November 2010).

Shape files depicting corridor boundaries and center points for each of proposed structure locations were uploaded onto Garmin 60Csx GPS units. Transect locations were determined using UTM's. Track logs depicting transects were recorded on GPS units. Rare plant occurrences were documented and recorded with GPS units. Direct counts of each occurrence were also documented.

Surveys completed in 2009 included a slightly different corridor footprint than the surveys in 2010 and 2011. The survey area was 1,000 feet wide and centered on:

1. the existing transmission line running north-south between the IV Substation and Hwy 98; and
2. Highway 98 from the existing transmission lines east to the Westside Main Canal.

Rare plant surveys were conducted by botanists John Messina, Shawn Johnston and Brandt Primrose. All three botanists are local and have significant experience working in the Sonoran Desert of San Diego and Imperial counties. John Messina and Shawn Johnston also conducted the 2009 and 2010 surveys. Surveys were conducted during the traditional blooming periods of sensitive species known from the vicinity of the project.

Table 1 documents the staff conducting the surveys and survey dates. Because of the dry conditions in the Yuha Basin at the end of April 2011, BLM did not require any late spring (May) special status plant surveys (Kim Marsden, BLM, pers comm. with Patrick Golden, Heritage Environmental Consultants). Similarly surveys in 2009 did not extend beyond March, again due to very dry climatic conditions that year.

Table 1: CSE Special Status Plant Survey Dates and Personnel	
Dates	Staff
March 17-20, 2009	John Messina; Shawn Johnston
November 6-7 & 13-14, 2010	John Messina; Shawn Johnston
March 25-27, 2011	John Messina; Shawn Johnston
April 3, 2011	John Messina; Shawn Johnston
April 22, 2011	John Messina; Shawn Johnston; Brandt Primrose
April 23, 2011	John Messina; Shawn Johnston
April 27, 2011	John Messina; Shawn Johnston; Brandt Primrose

Vegetation mapping of the entire survey area was conducted during the 2009 and 2010 rare plant surveys. Floral nomenclature follows that of Rebman and Simpson (2006) and Baldwin et al. (2002).

4.0 Survey Results

Vegetation Communities

Vegetation communities follow that of Sawyer et al. (2009). In some instances Sawyer's original communities were modified to account for the variations observed on the BLM lands surveyed. Much of the BLM lands within the survey area are Sonoran Desert scrub (**Appendix A - Figure 2**). Creosote bush-white bursage scrub is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Four-wing saltbush (*Atriplex canescens* var. *canescens*) and many-fruit saltbush (*Atriplex polycarpa*) are the most common associates in this community within the survey area. Desert Spanish needles (*Palafoxia arida* var. *arida*), plicate tiqulia (*Tiquilia palmeri*), desert plantain (*Plantago patagonica*), narrow-leaf cryptantha (*Cryptantha angustifolia*), desert sunflower (*Geraea canescens*), and short-ray desert marigold (*Baileya pauciradiata*) were the most common native species on the desert floor. Arabian schismus (*Schismus arabicus*) and Sahara mustard (*Brassica tournefortii*) are the most prevalent non-native species on the desert floor.

The vegetation within the survey area just north of Highway 98 was very open and sparse and typically lacked creosote bush. White bursage and coldenia were the two most conspicuous species in this habitat. This community is classified as white bursage scrub and may be the result of continued disturbance due to Border Patrol operations and ORV activity (based on the high density of tracks in this area). Desert understory species was sparse; desert Spanish needles was the most common native. Arabian schismus and Sahara mustard are also present within this community but not at the densities observed in other areas.

Several ephemeral desert washes occur within the survey area. The upper reaches of Pinto Wash flow through the Gen-tie Line corridor approximately one-quarter mile south of the Imperial Valley substation. This is the only wash within the survey area that supports extensive wash vegetation. Slight variations in topography result in changes in the vegetation along Pinto Wash, which results in a mosaic pattern of communities. Several different wash communities were mapped based on differences in species composition and densities. Though almost all of the species described here are present within the various wash communities, differences in dominant species between different patches of vegetation justified the distinctions. Smoke tree wash scrub, mesquite bosque, encelia-white bursage scrub, and ephedra-encelia wash scrub, are the wash communities mapped along Pinto Wash (**Appendix A – Figure 2**).

Smoke tree wash scrub is the most extensive wash community survey area. Smoke tree (*Psorothamnus spinosus*) is a conspicuous component of the habitat along with honey mesquite (*Prosopis glandulosa* var. *torreyana*), creosote bush, indigo bush (*Psorothamnus schottii*), ephedra (*Ephedra trifurca*), cheesebush (*Ambrosia salsola*), white bursage and plicate coldenia. Cheesebush and rayless encelia (*Encelia frutescens* ssp. *frutescens*) occur along the channel washes and lower benches.

Slightly higher in elevation along inconspicuous benches, white bursage, rayless encelia and ephedra are the dominant species. Areas within the smoke tree wash where ephedra and rayless

encelia co-dominate are classified as ephedra – encelia wash scrub. Areas where rayless encelia and white bursage co-dominate are classified as encelia-white bursage wash scrub.

Areas of relatively dense mesquite were classified as mesquite bosque. Ironwood (*Olneya tesota*) and catclaw acacia (*Acacia greggii*) are occasional associates. Desert floor species for all of the wash communities are similar to those described for the creosote bush-white bursage scrub. These desert floor species occur in higher densities and attain greater size in the wash due to the higher amounts of water.

Individuals of athel (*Tamarix aphylla*) have been planted in large numbers as a windscreen along the agricultural fields to the east. This species has invaded the desert habitat, especially along Pinto Wash both within the buffer areas and corridors.

Small areas of disturbed habitat are scattered around the existing transmission line corridors and the IV Substation. These areas generally lack vegetation or support populations of Arabian schismus and/or Sahara mustard.

Most of the aforementioned native desert habitats are restricted to the BLM lands. The remainder of the CSE Project occurs on agricultural lands. Native habitats in these areas are very limited and basically consist of riparian scrub communities (dominated by natives or non-natives) occurring along the banks and channels of irrigation canals and drains that checkerboard the agricultural fields. For a description of these habitats and the associated vegetation map for these non-BLM lands please refer to *Centinela Solar Energy, LLC. Habitat Assessment and Rare Plant Surveys* report (Heritage 2010).

A total of 75 species were observed during the all the site surveys of the BLM lands. Additional species were observed on the non-BLM lands during various surveys. **Appendix B** provides a floral inventory of the entire project (both BLM lands and private lands). Species observed on the BLM lands are identified in that table.

Native ephemeral plant diversity was fair during the late March/early April survey. *Plantago* sp. and narrow-leaf cryptantha (*Cryptantha angustifolia*) were the most abundant native herbaceous species. *Plantago* sp. seedlings were abundant. Narrow-leaf cryptantha was in various stages of flowering and setting fruit. Though certainly not in abundant bloom, individuals of sand verbena (*Abronia villosa* var. *villosa*), yellow cups (*Camissonia brevipes*), desert sunflower (*Geraea canescens*), short-ray desert marigold (*Baileya pauciradiata*), nada stick-leaf (*Mentzelia dispersa*), onyx flower (*Achyronychia cooperi*), narrow-leaf oligomeris (*Oligomeris linifolia*), brittle spineflower (*Chorizanthe brevicornu* var. *brevicornu*), rough purple-mat (*Nama hispidum* var. *spathulatum*), parch locoweed (*Astragalus aridus*), and soft prairie clover (*Dalea mollissima*) were all observed in bloom at the time of the survey.

Native ephemeral plant diversity was low during the late April 2011 survey. Several new species were detected during the late April survey but most of the ephemeral species were drying up by this time. Overall diversity and numbers of individuals were low by the end of April 2011;

therefore, BLM did not require additional special status plant surveys in May (Kim Marsden BLM pers comm. with Patrick Golden Heritage Environmental Consultants).

Special Status Plants

Table 2 lists all the Special Status Plants that are known from the vicinity of the survey area. Two special status plants were observed within the survey area: Wolf's cholla (*Cylindropuntia wolfii*) and Thurber's pilostyles (*Pilostyles thurberi*).

Ten individuals of Wolf's cholla were observed during the survey. Wolf's cholla is a BLM Sensitive Species; a California Native Plant Society's (CNPS) List 4.3 species (Uncommon in California/not endangered in California) and a CNDDDB special plant. Wolf's cholla is a small, multi-branched cactus with cylindrical stem segments that are tubercled. The trunk branches multiple times from the base. The red filaments of the flowers are a diagnostic character and along with the branching pattern allowed for positive identification. These individuals occur in Pinto Wash south of the substation between proposed structures 11 and 16. Three individuals were observed along the proposed Gen-tie Line route; no individuals were observed in the alternative corridors; and seven individuals were observed in the buffer area.

Thurber's pilostyles is a CNPS List 4.3 species (Uncommon in California/not endangered in California) and a CNDDDB special plant. Thurber's pilostyles is a parasitic plant on the genus *Psoralea*. This species appears only as small flowers on its host. Remnant dried flowers of this species were observed on several smoke trees in the smoke tree wash habitat within Pinto Wash south of the IV Substation and north of Highway 98.

Table 2 lists other special status species that were not observed but have the potential for occurrence in the survey area. Many of these species have a low potential for occurrence because they occur in specialized habitats (e.g., desert dunes or rocky desert scrub, both of which are absent from this portion of the Yuha Basin). As such, many of the closest reported populations of these species are either in the Algodones Dunes of the East Mesa, or the Jacumba or Coyote Mountains east of the site.

Brown turbans (*Malperia tenuis*), Parish's desert-thorn (*Lycium parishii*), and Utah vine milkweed (*Funastrum utahense*) are the only species in **Table 2** that have been recently reported from the vicinity of the CSE Project. Habitats for these species are present within the survey area. Surveys for these species were conducted during their traditional blooming periods, but these species were not observed and have a low potential for occurrence. Brown turbans (a CDFG special plants and CNPS 2.3 species) is a very cryptic species and could easily be missed. Parish's desert-thorn (also a CDFG special plants and CNPS 2.3 species) and Utah vine milkweed (a CDFG special plants and CNPS 4.2 species) are more conspicuous and less likely to have been missed during the surveys; as such they are not expected to occur within the survey area.

Abram's spurge (*Chamaesyce abramsiana*) is known from several historical locations from the vicinity of the survey area. Abram's spurge (a CDFG special plants and CNPS 2.2 species) is a fall/winter blooming species; a focused fall survey for this species was conducted in November

2010. This species was not observed during the fall survey. *Chamaesyce micromera*, a fall blooming relative of *C. abramsiana*, was locally common during the fall 2010 survey suggesting that conditions were likely favorable for Abram's spurge to germinate. As such, this species is not expected to occur within the survey area.

Wiggins' croton (*Croton wigginsii*) is a California state listed rare species and a BLM sensitive species that was historically considered restricted to the Algodones Dunes on East Mesa, though this species has recently been reported from near Plaster City. All individuals of *Croton* observed during the surveys displayed characteristics that were consistent with *C. californicus* including: seed size and shape, size of staminate sepals and flowering phenology. Andrew Trouette (BLM) and John Messina (Trouette 2010) determined this conclusion. Additionally, surveys of the Imperial Solar Energy Center (ISEC) South project, which overlapped with much of the survey area for CSE, did not detect Wiggins' croton. Similar to the results of the CSE survey, the *Croton* observed on the ISEC South project was identified as *C. californicus*.

Hairy stickleaf (*Mentzelia hirsutissima*), rock nettle (*Eucnide rupestris*) and California satintail (*Imperata brevifolia*) are all reported very close to the survey area, but are not expected to occur in the survey area. Surveys conducted in 2009 and 2011 coincided with the traditional flowering period for rock nettle (a CDFG special plants and CNPS 2.2 species). In addition, Shawn Johnston observed a flowering reference population on March 20, 2009 in Painted Gorge.

The low numbers of observed special status plant species is to be expected. The survey area is in the southeast corner of the Yuha Desert bordered on the east by agricultural lands. It is also immediately adjacent to existing 230-kV transmission lines, Highway 98, the IV substation and the International Border. The survey is impacted by ORV use, foot traffic, and invasive species, all of which contribute to lower densities of special status species. Additionally, the survey area is relatively small with few habitat types. Given the small amount of suitable habitat, the level of degradations, and the location at the edge of the desert and large-scale agricultural lands, the lands within the survey area are not expected to support many special status species. Lastly, many of the special status plants under the jurisdiction of the El Centro Field Office occur in habitats that are not present in the survey area and occur either in the Algodones Dunes of East Mesa or the Jacumba or Coyote Mountains near In-Ko-Pah and have never been reported from the immediate vicinity of the CSE and are not expected to occur here.

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

Species Name	Sensitivity Status	Potential for Occurrence
Chaparral sand verbena (<i>Abronia villosa</i> var. <i>aurita</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.1	Occurs in sandy floodplains or flats in generally, inland arid areas of sage scrub and open chaparral and desert dunes (Reiser 2001; CNPS 2011). Annual; blooms January – September (CNPS 2011). Not expected to occur within the survey area. Site generally outside of range of species; not observed during 2009, 2010 or 2011 surveys. Both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not. Known from Calexico, Seeley, and Superstition Mountains quads (CNPS, 2010). Marginal habitat present within native habitats in survey area.
Watson’s amaranth (<i>Amaranthus watsonii</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in Sonoran Desert Scrub. Annual; blooms August – September. Not observed but surveys occurred outside of traditional blooming period. Low potential for occurrence within desert scrub habitats. Suitable habitat present within native desert scrub in survey area. Known from Calexico and Heber quads (CNPS 2011).
Salton milk vetch (<i>Astragalus crotalariae</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in sandy or gravelly Sonoran Desert scrub habitat and is known from the Superstition Mountains quad. This herbaceous perennial blooms from January to April (CNPS 2011). Not observed and low potential for occurrence in the survey area. Potential habitat present within survey area. However, both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not.
Harwood’s milk vetch (<i>Astragalus insularis</i> var. <i>harwoodii</i>)	CDFG: Special Plant CNPS List: 2.2	Occurs in Sonoran Desert scrub with gravelly, sandy washes or dunes (Reiser, 2001). Annual; blooms January-May (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Also known from In-Ko-Pah Gorge and Coyote Wells quads (CNPS 2011). Habitat (sandy washes) present within native desert scrub in survey area within Pinto Wash, just south of IV substation. Not observed and low potential for occurrence. Both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not. Known from Coyote Wells quad (CNPS 2011).
Borrego milk vetch (<i>Astragalus lentiginosus</i> var. <i>borreganus</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in sandy Sonoran Desert scrub habitat and is known from the Shell Reef quad in upper Borrego Valley and from the Algodones Dunes on East Mesa. This herbaceous perennial blooms from February to May (CNPS 2011). Not observed and low potential for occurrence in the survey area. Potential habitat present. However, both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not.
Peirson’s milk vetch (<i>Astragalus magdalenae</i> var. <i>peirsonii</i>)	USFWS: Threatened CDFG: Endangered BLM: Sensitive CNPS List 1B.2	Occurs in desert dunes habitat, this species is known from fewer than 10 occurrences. Known from Algodones Dunes on East Mesa and upper Borrego Valley. A herbaceous perennial that blooms from December to April (CNPS 2011). This species was not observed or expected to occur in the survey area due to the lack of suitable habitat and its current known distribution. The 2009 and 2011 spring surveys were conducted during this species traditional blooming period; the 2010 fall survey was not.
Desert ayenia (<i>Ayenia compacta</i>)	CDFG: Special Plant CNPS List: 2.3	Occurs in rocky Sonoran Desert scrub. A herbaceous perennial that blooms from March to April (CNPS 2011). Closest reported populations include Jacumba and Sweeney Pass. This species was not observed and is not expected to occur in the survey area due to the lack of suitable habitat, i.e., rocky areas. Known populations are well west of the corridor in the rocky mountains above the Yuha Basin. The 2009 and 2011 spring surveys were conducted during this species traditional blooming period; the 2010 fall survey was not.

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

Little-leaf elephant (<i>Bursera microphylla</i>)	CDFG: Special Plant CNPS List: 2.3	Occurs in alluvial fan scrub (Reiser 2001) and rocky areas in Sonoran Desert scrub. Deciduous tree; blooms June-July (CNPS 2011). Not observed within the corridors and buffer areas; not expected to occur. Distinctive tree species would have been observed during surveys if present. Nearest location in In-Ko-Pah Gorge, Sweeney Pass and Arroyo Tapiado quads (CNPS, 2011). Alluvial fan scrub habitat and rocky scrub absent in the survey area. Closest sites are in rocky desert foothills to west of site.
Fairy duster (<i>Calliandra eriophylla</i>)	CDFG: Special Plant CNPS List 2.3	Occurs in Sonoran Desert scrub primarily on rocky hillsides and bajadas (Reiser, 2001; CNPS 2011). Deciduous shrub; blooms January – March (CNPS 2011). Not observed during surveys. Not expected to occur due to absence of suitable habitat in survey area. Both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not. One CNDDDB occurrence just southwest of southwestern corner of Gen-tie Line corridor which is also likely the Yuha Basin Quad location reported by CNPS (2011). Most occurrences of this species in East Mesa of Imperial County (CNPS 2011).
Sand evening primrose (<i>Camissonia arenaria</i>)	CDFG: Special Plant CNPS List 2.2	Occurs in sandy or rocky Sonoran Desert scrub. This annual/herbaceous perennial blooms from November–May and is reported from the Quartz Peak quad in the Chocolate Mountains (CNPS 2011). Not observed during the surveys and not expected to occur in the survey area. The 2009 and 2011 spring surveys and the 2010 fall survey were all conducted during this species traditional blooming period. Though suitable habitat is present the reported occurrences of this species are distant from the survey area.
Crucifixion thorn (<i>Castela emoryi</i>)	CDFG: Special Plant CNPS List 2.3	Occurs in playas and gravelly areas in Sonoran Desert scrub. Deciduous shrub; blooms April – July (CNPS 2011). Not observed during surveys. Distinctive shrub species would have been observed if present. Not expected to occur. Suitable habitat (i.e., playas and gravelly areas) absent in survey area. 2011 spring surveys were conducted during this species traditional flowering period; 2009 spring and 2010 fall surveys were not. Known from Yuha Basin and Coyote Wells quads (CNPS 2011).
Peirson’s pincushion (<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.3	Occurs in sandy Sonoran Desert scrub. Annual; blooms March-April. Known only from the eastern Santa Rosa Mountains with closest reported location from the Borrego Mountain SE quad (CNPS 2011). Suitable habitat present in survey area. However, species not expected to occur due to its present known range. Not observed during surveys. Both 2009 and 2011 spring surveys conducted during species traditional flowering period; 2010 fall survey was not.
Abram’s spurge (<i>Chamaesyce abramsiana</i>)	CDFG: Special Plant CNPS List 2.2	Occurs in sandy Sonoran Desert scrub. Annual; blooms September – November (CNPS 2011). Suitable habitat present in survey area. Low potential to occur in native desert scrub habitats in survey area. Historical collections known from Calexico, Heber and Brawley quads (CNPS, 2011). Not observed during focused surveys for this species in November 2010 following fall rains. Both 2009 and 2011 spring surveys were conducted outside of this species traditional flowering period.
Arizona spurge (<i>Chamaesyce arizonica</i>)	CDFG: Special Plant CNPS List 2.3	Occurs in sandy Sonoran Desert scrub. Known from the In-Ko-Pah Gorge Quad, this species is undocumented in Imperial County. This herbaceous perennial blooms from March to April (CNPS 2011). Not observed in the survey area. Both 2009 and 2011 spring surveys were conducted during this species traditional blooming period; 2010 fall survey was not. Not expected to occur. Though suitable habitat is present, survey area is outside of this species current known range.
Flat-seeded spurge (<i>Chamaesyce platysperma</i>)	BLM: Sensitive CDFG: Special Plant	Occurs in desert dunes and sandy Sonoran Desert scrub. Known in California from only four herbarium collections and one collection from Imperial County in 1987 (CNPS 2011). Annual; blooms February – September. Known from Superstition Mountain and Kane Springs quads in Imperial County (CNPS 2011). Not observed in survey area. Both 2009

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

	CNPS List 1B.2	and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Not expected to occur. Species is very rare and limited suitable habitat in the survey area (i.e. no desert dunes and limited sandy areas).
Las Animas colubrinia (<i>Colubrinia californica</i>)	CNPS List 2.3	Occurs in Sonoran Desert scrub (CNPS 2001) often localized around springs and mesic rocky canyon bottoms (Reiser 2001). This deciduous shrub blooms from April-June and is reported from Picacho Peak and Quartz Peak in the Chocolate Mountains (CNPS, 2001). Not observed in the survey area. The 2011 spring surveys were conducted during this species traditional blooming period; the 2009 spring and 2010 fall surveys were not. Not expected to occur. Suitable habitat lacking and site is outside known current distribution.
Spiny abrojo (<i>Condalia globosa</i> var. <i>pubescens</i>)	CDFG: Special Plant CNPS List 4.2	Occurs in Sonoran Desert scrub. This deciduous shrub blooms from March-May. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat is present in the survey area. However both the 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. As a shrub, this species is not expected to occur as it would have been observable during these surveys if present.
Wiggins croton (<i>Croton wigginsii</i>)	BLM: Sensitive CDFG Rare CNPS List 2.2	Occurs in desert dunes and Sonoran Desert scrub. Shrub; blooms March – May. CNPS reports species restricted to Algodones Dunes and all CNPS locations are on the East Mesa (CNPS 2011). Known from near Plaster City between S-80 and I-80 (URS, 2010). Not observed and not expected to occur in the survey area. Limited habitat (i.e. desert dunes) and site is outside of species range. All individuals of <i>Croton</i> observed during the surveys displayed characteristics that were consistent with <i>C. californicus</i> including: seed size and shape, size of staminate sepals and flowering phenology.
Ribbed cryptantha (<i>Cryptantha costata</i>)	CDFG: Special Plant CNPS List: 4.3	Occurs in desert sand dunes and sandy desert scrub. Annual; blooms February – May (CNPS 2011). Reiser (2001) reports an old historical collection from Pinto Wash. Not observed during 2009 and 2011 spring surveys. Potential habitat along Pinto Wash.
Wolf's cholla (<i>Cylindropuntia wolfii</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 4.3	Occurs in Sonoran Desert scrub, usually on alluvial fans or rocky slopes (Reiser 2001). Stem succulent that blooms from March-May. Known from San Diego and Imperial counties and Baja, California (CNPS 2011). Ten individuals observed along Pinto Wash south of the IV substation.
Glandular ditaxis (<i>Ditaxis claryana</i>)	CDFG: Special Plant CNPS List 2.2	Occurs in sandy Sonoran Desert scrub. Herbaceous perennial; blooms October – March. Known from Algodones Dunes. Ogliby and Iris quads are closest reported populations (CNPS 2011). Not observed during surveys. The 2009 and 2011 spring surveys conducted during the end of this species traditional blooming period, while the 2010 fall survey was conducted towards the beginning of this species blooming period. Not expected to occur, survey area is outside of known range.
California ditaxis (<i>Ditaxis serrate</i> var. <i>californica</i>)	CDFG: Special Plant CNPS List 3.2	Sonoran Desert scrub. Herbaceous perennial, blooms March-December. Nearest known occurrence Clark Lake Quad in northern Anza Borrego State Park. Most other reported locations along the I-10 corridor between Indio and Blythe (CNPS 2011). Not observed during surveys. Not expected to occur. Suitable habitat present in survey area. All three surveys the 2009 and 2011 spring surveys and 2010 fall survey were conducted during this species traditional blooming period. Site well south of reported range of this species in California.
Rock nettle (<i>Eucnide rupestris</i>)	CDFG: Special Plant CNPS List 2.2	Sonoran Desert scrub. Annual; blooms December – April. Known from Mount Signal and Coyote Wells quads (CNPS 2011). CNDDDB occurrence from solar site (likely Mount Signal quad location) but entire site is under cultivation. CNDDDB occurrence in Yuha Basin (likely CNPS Coyote

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

		Wells quad location). Not observed during surveys. Low potential for occurrence. Suitable habitat present in survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Reference population observed by Shawn Johnston on 3-20-2009 in flower in Painted Gorge after conclusion of within the corridors and buffer areas 2009 surveys.
Utah vine milkweed (<i>Funastrum (=Cynachum) utahense</i>)	CDFG: Special Plant CNPS List: 4.2	Occurs in sandy or gravelly Sonoran Desert Scrub. Herbaceous, perennial growing on desert shrubs; blooms April – June (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Suitable habitat present in survey area. Low potential for occurrence in native desert scrub habitats in survey area. Known from Yuha Basin south of S80. 2011 survey conducted during this species traditional flowering period; 2009 surveys may have been a little too early for detection. 2010 survey conducted outside of this species traditional flowering period.
Algodones Dunes sunflower (<i>Helianthus niveus</i> ssp. <i>tephrodes</i>)	CDFG: Endangered CNPS List 1B.2	Occurs in desert dunes and is restricted to the Algodones Dunes of East Mesa. This herbaceous perennial blooms from September-May. Not observed or expected to occur in survey area. Suitable habitat is absent in the survey area and it is well west of current known distribution. Both 2009 and 2011 spring surveys and 2010 fall survey were conducted during this species traditional flowering period.
Curly herissantia (<i>Herissantia crispata</i>)	CDFG: Special Plant CNPS List 2.3	Occurs in Sonoran Desert scrub. Annual- herbaceous perennial; Blooms August – September. Only known from two locations in California, both in San Diego County (Pinto Wash and Mountain Springs Grade) (CNPS 2011). Not known from Imperial County). Suitable habitat present in survey area. However, site is well below reported lower elevational range (700m) (CNPS 2011). Not observed, however 2009, 2001 and 2011 surveys not conducted during species traditional blooming period. Suitable habitat present; however not expected to occur due to species known range.
Pink velvet mallow (<i>Horsfordia alata</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat is present in survey area. However both the 2009 and 2011 spring surveys as well as the 2010 fall survey were all conducted during this species traditional blooming period. As a shrub, this species is not expected to occur in the survey area because it would have been observable during these surveys if present.
Newberry’s velvet mallow (<i>Horsfordia newberryi</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from the Carrizo Mountain Quad (CNPS 2011). Suitable habitat i.e. rocky areas, is absent in the survey area. Both the 2009 and 2011 spring surveys as well as the 2010 fall survey were all conducted during this species traditional blooming period. As a shrub, this species is not expected to occur in the survey area because it would have been observable during these surveys if present.
California satintail (<i>Imperata brevifolia</i>)	CDFG: Special Plant CNPS List 2.1	Riparian scrub; desert scrub. Herbaceous perennial; blooms September – May (CNPS 2011). CNDDDB occurrence immediately east of solar site between Greeson Wash and New River. Not observed during surveys. 2009 and 2011 spring surveys and 2010 fall survey conducted during traditional blooming period. Not expected to occur in the survey area.
Baja California ipomopsis (<i>Ipomopsis effusa</i>)	CDFG: Special Plant CNPS List 2.1	Occurs in washes in Sonoran desert scrub. Annual; blooms April – June. Only known location in California from Pinto Wash west of the site. Considered a waif in California, more common in Baja, California (CNPS 2011). Suitable habitat present in survey area. Not observed and not expected in the survey area due to known range and rarity in California. 2011 spring survey conducted during this species traditional flowering period; 2009 spring surveys may have been a little too early for detection. 2010 fall survey conducted outside of this species traditional flowering

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

		period.
Slender-leaved ipomopsis (<i>Ipomopsis tenuifolia</i>)	CDFG: Special Plant CNPS List 2.3	Occurs in rocky/gravelly Sonoran Desert scrub. Herbaceous perennial; blooms March – May. Known from In-Ko-Pah Gorge and Jacumba quads (CNPS 2011). Not observed and not expected in the survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Suitable habitat, (i.e., rocky/gravelly desert scrub) absent in survey area. Site outside of known current range of species.
Pygmy lotus (<i>Lotus haydonii</i>)	CNPS List 1B.3	Occurs in rocky Sonoran Desert scrub. Herbaceous perennial; blooms January – June. Known from In-Ko-Pah Gorge quad (CNPS 2011). Not observed and not expected in the survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Suitable habitat (i.e., rocky/gravelly desert scrub) absent in survey area. Site outside of current known range of species and well below reported lower elevational range (520m) (CNPS 2011).
Mountain Springs bush lupine (<i>Lupinus excubitus</i> var. <i>medius</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.3	Occurs in Sonoran Desert scrub. Perennial shrub; blooms March – May. Known from In-Ko-Pah Gorge and surrounding quads of desert transition areas (CNPS 2011). Not observed and not expected in the survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Marginal habitat (species range is more in desert transition habitats). Site outside of current species known range and well below reported lower elevational range (425m) (CNPS 2011).
Parish's desert-thorn (<i>Lycium parishii</i>)	CDFG: Special Plant CNPS List: 2.3	Occurs in Sonoran Desert scrub with sandy plains and washes. Shrub; blooms March – April. Known from In-Ko-Pah Gorge and Carrizo Mountain quads (CNPS 2011). Not observed during the survey. Reported adjacent to the corridor south of Hwy 98 during surveys of Imperial Solar Energy Center project. Low potential for occurrence in the survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Suitable habitat present in survey area, especially within Pinto Wash south of the IV substation.
Coulter's lyrepod (<i>Lyrocarpa coulteri</i> var. <i>palmeri</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in rocky or gravelly Sonoran Desert scrub. This herbaceous perennial; blooms January – June (Reiser 2001; CNPS 2001). Reiser (2001) reports this species from a number of rocky desert canyons in eastern San Diego County. Suitable habitat (i.e., rocky/boulders) absent in survey area. Not observed during surveys. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. This species is not expected to occur in survey area due to the lack of suitable habitat.
Brown turbans (<i>Malperia tenuis</i>)	CDFG: Special Plant CNPS List: 2.3	Occurs in sandy, Sonoran Desert scrub. Annual, blooms March – April (CNPS 2011). Several CNDDDB locations in Yuha Basin which correspond to CNPS locations for the Mount Signal, Painted Gorge and Yuha Basin quads (CNPS 2011). Suitable habitat present in survey area. Not observed during surveys. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Though spring surveys negative this is a very inconspicuous species and species would still have moderate potential for occurrence survey area.
Hairy stickleaf (<i>Mentzelia hirsutissima</i>)	CDFG: Special Plant CNPS List: 2.3	Occurs in Sonoran Desert Scrub on rocky hillsides and desert mesas (Reiser 2001; CNPS 2011). Annual; blooms March – May. Known from Mount Signal quad (CNPS 2011). CNDDDB occurrence (likely Mount Signal quad occurrence) immediately north of CSE Facility. Entire area of this occurrence, with exception of Greeson Wash, is under cultivation. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Low potential for occurrence for the areas of native desert scrub habitats. Rocky hillsides absent but desert mesas present. Most of this species' localities in the

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

		desert transition areas to the east of the site including localities from In-Ko-Pah Gorge and Sweeny Pass quads (CNPS 2011).
Creamy blazing star (<i>Mentzelia tridentata</i>)	CDFG: Special Plant CNPS List 1B.3	Occurs in rocky, gravelly and sandy desert scrub. Annual; blooms March – May. Known from In-Ko-Pah Gorge quad (CNPS 2011). Not observed or expected in survey area. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not. Suitable sandy scrub habitat present in survey area. However, site outside of known range in California and well below lower elevational limit (700 meters) reported for this species (CNPS 2011).
Slender-lobed four o'clock (<i>Mirabilis tenuiloba</i>)	CDFG: Special Plant CNPS List: 4.3	Occurs in Sonoran Desert Scrub. A herbaceous perennial that blooms March – May. This species is reported from the 17 Palms Quad (CNPS 2011). Suitable desert scrub habitat present in survey area. Not observed or expected. Both 2009 and 2011 spring surveys conducted during this species traditional blooming period; 2010 fall survey was not.
Slender wooly-heads (<i>Nemacaulis denudata</i> var. <i>gracilis</i>)	CDFG: Special Plant CNPS List: 2.2	Occurs in desert dunes and Sonoran Desert scrub. Annual; blooms March – May. Known from Coyote Wells quad. Most of locations for this species are in Algodones Dunes of East Mesa (CNPS 2011). Not observed during surveys. The 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys were not. Low potential for occurrence due to presence of suitable native desert scrub habitats in survey area, though very sandy are absent. However species was not observed during two spring surveys.
Giant Spanish-needle (<i>Palafoxia arida</i> var. <i>gigantea</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.3	Occurs in desert dunes. Annual- herbaceous perennial; blooms March – May. Known from Algodones Dunes on the East Mesa (CNPS 2011). Not observed or expected in survey area. Suitable habitat (i.e., desert dunes) is absent in survey area and it is well west of reported range of species. 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys were not.
Sand food (<i>Pholisma sonorae</i>)	BLM: Sensitive CDFG: Special Plant CNPS List 1B.2	Occurs in desert dunes and sandy Sonoran Desert scrub. This herbaceous perennial is parasitic on native desert shrubs and blooms from March – May. This species is known from the Holtville West Quad just east of the corridors and most of the locations are in the Algodones Dunes of the East Mesa (CNPS 2011). This species would have a low potential for occurrence in the survey area. Suitable habitat (sandy areas) is minimal and the 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys were not.
Thurber's pilostyles (<i>Pilostyles thurberi</i>)	CDFG: Special Plant CNPS List: 4.3	Herbaceous perennial parasitic on <i>Psorothamnus</i> sp.; blooms January. Known from Plaster City and Mount Signal (Reiser 2001). CNDDDB occurrence from solar site but entire site is under cultivation, no host plants present. Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Individuals observed on <i>Psorothamnus</i> in smoke tree wash along Pinto Wash. Most of flowers observed were past bloom so population could be more extensive than observed.
Desert unicorn-plant (<i>Proboscidea althaeifolia</i>)	CDFG: Special Plant CNPS List 4.3	Occurs in sandy, Sonoran Desert scrub. Herbaceous perennial; blooms May – August (CNPS 2011). There are no CNPS or CNDDDB locations for this species in the vicinity of the project. Low potential for occurrence in western segments of corridor options due to presence of suitable habitat. Not observed during surveys but 2009 and 2011 spring and 2010 fall surveys did not coincide with this species traditional blooming period.
Desert spike-moss (<i>Selaginella eremophila</i>)	CDFG: Special Plant CNPS List: 2.2	Occurs in rocky or gravelly terrain in Sonoran Desert scrub (Reiser 2001; CNPS 2011). Herbaceous perennial is most conspicuous in May-July (CNPS 2011). Closest reported populations in rocky desert scrub of In-Ko-Pah and Sweeny Pass quads (CNPS 2011). Not observed, not expected to occur due to the lack of suitable habitat. Site appears to be outside of range of species in California.

Table 2: Special Status Plant Species Occurring or Potentially Occurring Within the CSE Gen-tie Line Corridor

<p>Dwarf germander (<i>Teucriumcubense</i> ssp. <i>depressum</i>)</p>	<p>CDFG: Special Plant CNPS List: 2.2</p>	<p>Occurs in sandy washes, streams and wet soils, Sonoran Desert scrub. Annual; blooms March – May (September- November if fall rains occur). Known from Coyote Wells quad (CNPS 2011). Not observed or expected in survey area. Marginal suitable habitat (i.e., sandy washes) present but may be too dry, present in Pinto Wash just south of the IV substation. Site may also be at limits of known species range. 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys was conducted during this species traditional fall blooming period. Most locations of this species in I-10 corridor from Indio to Blythe.</p>
<p>Mecca aster (<i>Xylorhiza cognata</i>)</p>	<p>CDFG: Special Plant CNPS List 1B.2</p>	<p>Occurs in Sonoran Desert scrub. This species is known from 17 Palms Quad. This herbaceous perennial blooms from January-June. Most of the reported occurrences are in the Indio and Mecca Hills surrounding Palm Springs and Indio (CNPS 2011). Not observed or expected in survey area. Suitable habitat present, present but site may also be at limits of known species range. The 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys were not.</p>
<p>Orcutt’s woody-aster (<i>Xylorhiza orcuttii</i>)</p>	<p>BLM: Sensitive CDFG: Special Plant CNPS List: 1B.2</p>	<p>Occurs in Sonoran Desert scrub in rocky canyons and sandy washes (Reiser 2001). Herbaceous perennial; blooms March – April (CNPS 2011). Closest reported localities are Carrizo and Borrego Mountain quads, areas of rocky terrain. Not observed or expected in survey area. Suitable marginal habitat present (i.e., sandy washes) present but rocky canyons absent in survey area. Site may also be at limits of known species range. The 2009 and 2011 spring surveys conducted during traditional blooming period; 2010 fall surveys were not.</p>

Sensitivity Status Codes used in this table:

USFWS: Endangered- Plant taxa that are listed as threatened under the Federal Endangered Species Act

CDFG: Endangered- Plant taxa that are listed as endangered with extinction under the California Endangered Species Act

Special Plant: Plant taxa that are inventoried by the CNDDDB

BLM: Sensitive- Plants that are designated by the State Director for special management consideration.

CNPS: List 1B Rare, Threatened or Endangered in California and elsewhere

List 2: Rare, Threatened or Endangered in California, more common elsewhere

List 4: Plants of Limited Distribution

Threat extension: 1- Seriously endangered in California

2- Fairly endangered in California

3- Not very endangered in California

5.0 Potential Impacts and Mitigation

Project features are in the preliminary stages of design; therefore, specific feature locations and sizes (such as structures, pads, spur roads, pulling sites, temporary work areas, etc.) are subject to change.

Based on the preliminary site design, it appears that none of the Wolf's cholla or Thurber's pilostyles would be directly impacted by the project. However, two individuals are in close proximity to structure pad location 12 (one individual next to the preferred structure pad location and one next to the alternative structure pad location) that slight changes in the design could result in impacts. It is assumed that only one of these two individuals is at risk depending upon which structure pad location is chosen. It is also assumed that impacts to these individuals can be easily avoided.

Impacts to Wolf's cholla and Thurber's pilostyles should be avoided to the extent feasible through project design and best management practices. If impacts cannot be feasibly avoided, mitigation in the form of off-site habitat acquisition of occupied habitat, or the relocation of impacted individuals in the case of Wolf's cholla. Translocating these individuals to other areas of Pinto Wash outside of the disturbance area could mitigate impacts to Wolf's cholla. This species has a high potential for successful translocation (Kim Marsden, BLM pers comm. with John Messina). Wolf's cholla is a small shrub that branches at its base. One individual was observed during the survey that had been uprooted due to flooding action, only to become reestablished (John Messina pers. obs.).

Unavoidable impacts to the Thurber's pilostyles would be mitigated through offsite acquisition of occupied habitat (e.g., smoke tree wash). Thurber's pilostyles is parasitic on members of the genus *Psorothamnus*, and requires the presence of its host. Impacts to Thurber's pilostyles would only arise if there were concurrent impacts to smoke tree wash habitat, which would also require mitigation. As such, compensatory mitigation for the smoke tree wash habitat would also fulfill any compensatory mitigation for Thurber's pilostyles as long as this species is present in the acquired habitat for the smoke tree wash habitat.

Final mitigation requirements would be developed in coordination with the BLM and other agencies as appropriate.

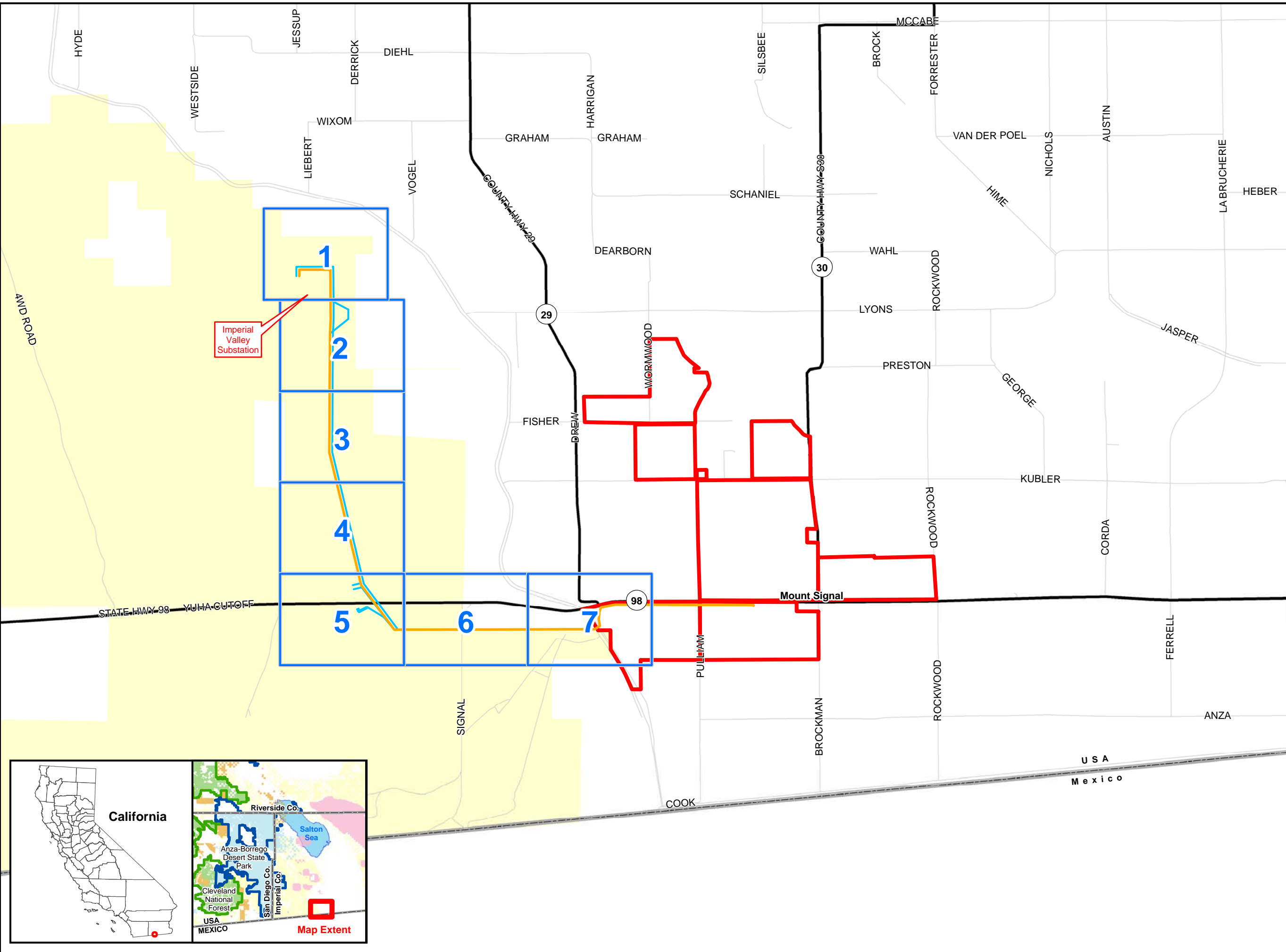
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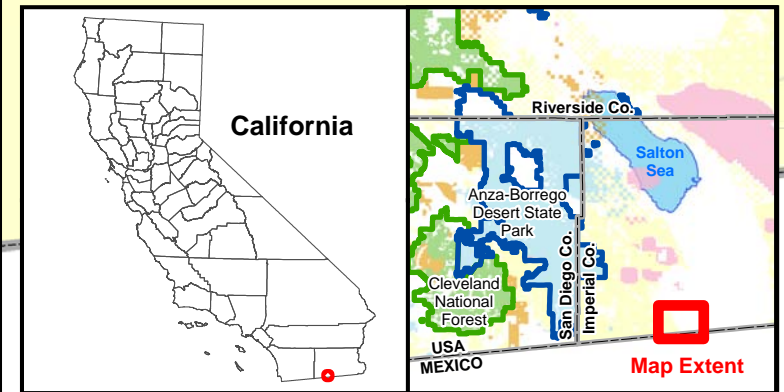
Appendix A –Figure 2 Vegetation and Special Status Plant Species



Figure 2
Vegetation and Special Status
Plant Species for CSE
on BLM Lands

Map Sheet Index



-  Gen-tie Line Route
-  Alternative Gen-tie Line Route
-  Major Road
-  Road
-  International Boundary
-  Map Sheet Boundary
-  CSE Facility
-  Major Water Body
-  Cleveland National Forest Congressional Boundary
-  State Park Boundary
- Jurisdictional Land Ownership
-  Bureau of Land Management Land
-  U.S. Forest Service Land
-  Department of Defense Land
-  State Land
-  Indian Land







 0 0.5 1 1.5
 Miles

State Plane Coordinate System
 California Zone 6, NAD 83
 Lambert Conformal Conic Projection
 1983 North American Datum
 Linear Unit: Foot US

Centinela Solar Energy, LLC




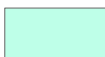

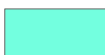
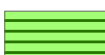
Figure 2 Vegetation and Special Status Plant Species for CSE on BLM Lands

BLM Special Status Plants





-  Thurber's pilostyles (*Pilostyles thurberi*) (Pt)
-  Wolf's cholla (*Cylindropuntia wolfii*) (Cw)

Vegetation Communities


Desert Scrub

-  Creosote Bush – White Bursage Scrub (CBS)
-  Creosote Bush – White Bursage Scrub - Disturbed (CBS-D)
-  Creosote Bush – White Bursage Scrub / Alkali Depressions (CBS/AD)
-  Desert Pavement (DP)
-  Goldenbush scrub (GS)
-  Mesquite - Catclaw Scrub (MCCS)
-  White Bursage Scrub - Disturbed (WBS-D)

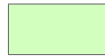

Desert Wash Scrub

-  Encelia – White Bursage Wash Scrub (EWBS)
-  Ephedra – Encelia Wash Scrub (EEWS)
-  Mesquite Bosque (MB)
-  Smoke Tree Wash Scrub (STWS)

Native Woodland

-  Mesquite Woodland (some possibly planted) (MW)

Non-Native Communities

-  Agriculture (AG)
-  Developed or Disturbed Habitat (Dev or DH)

Riparian and Wetland



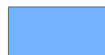
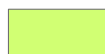
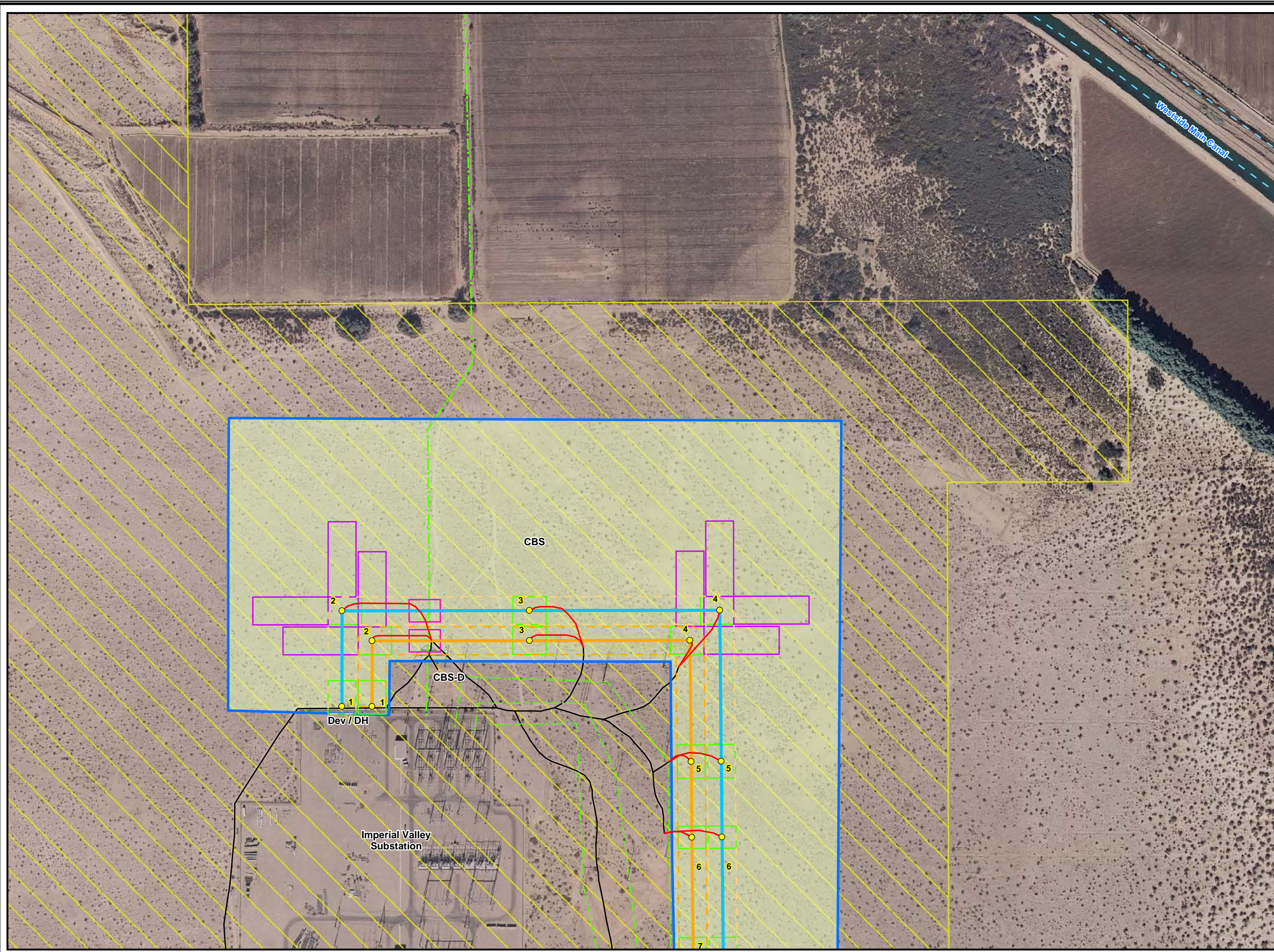
-  Arrow Weed Scrub / Tamarisk Scrub (AS/TS)
-  Non-Vegetated Sandy Wash (NVSW)
-  Open Water (OW)
-  Tamarisk Scrub (TS)

Figure 2
Vegetation and Special Status
Plant Species for CSE
on BLM Lands



- Legend**
- Gen-tie Structure
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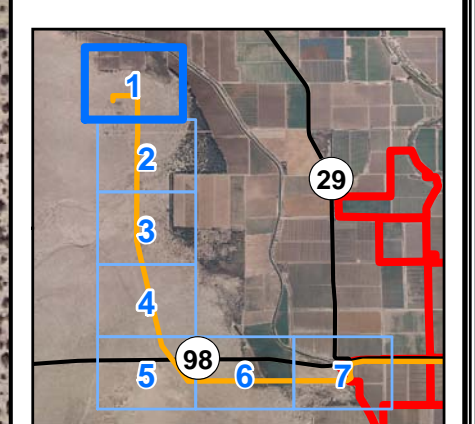
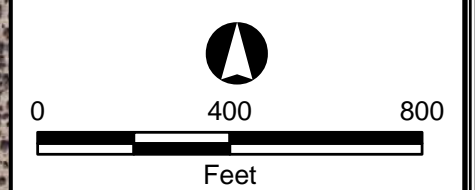
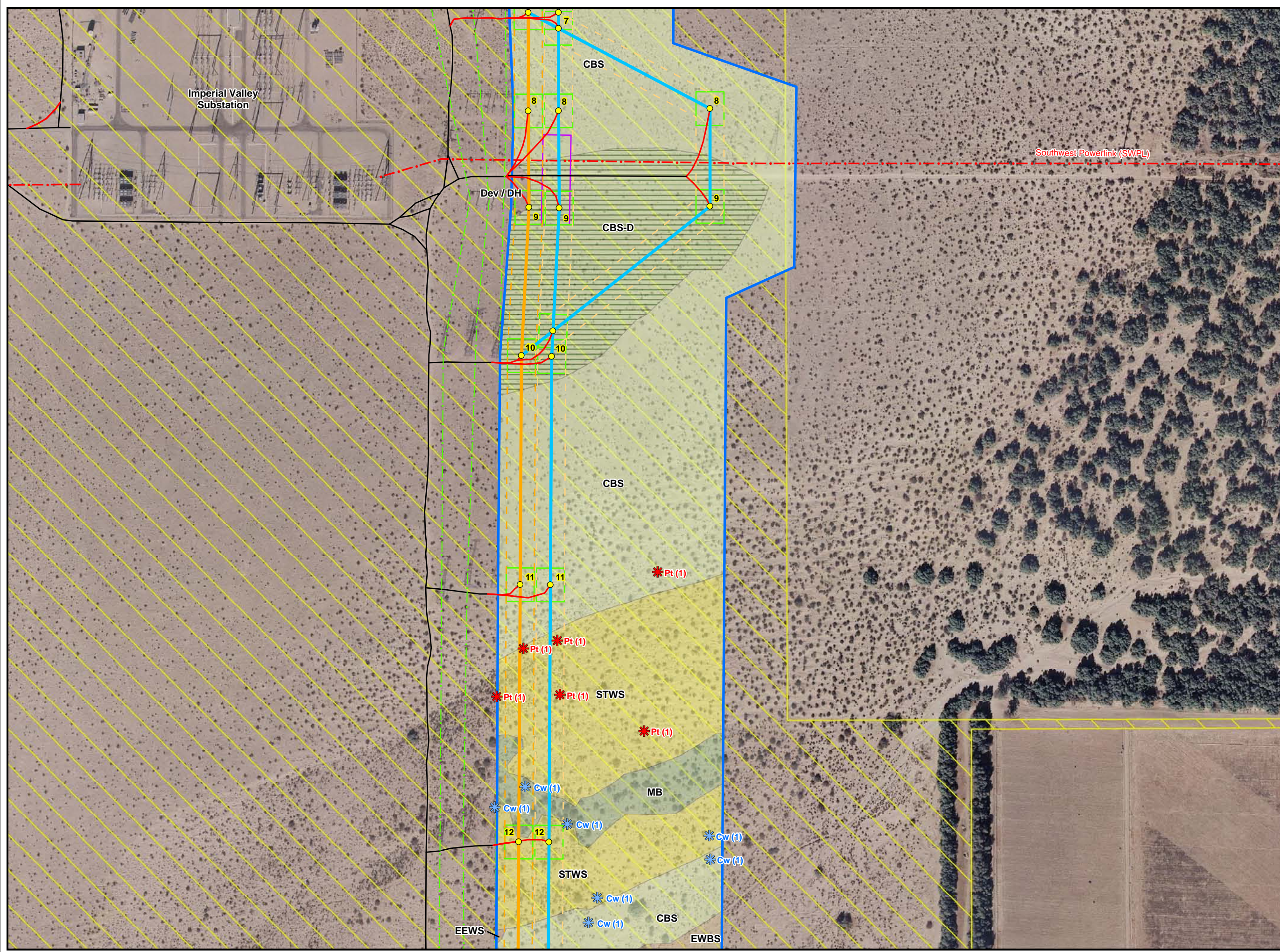


Figure 2
Vegetation and Special Status
Plant Species for CSE
on BLM Lands



Legend

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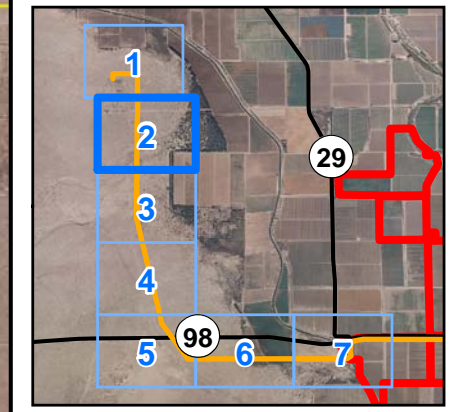
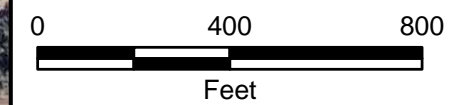


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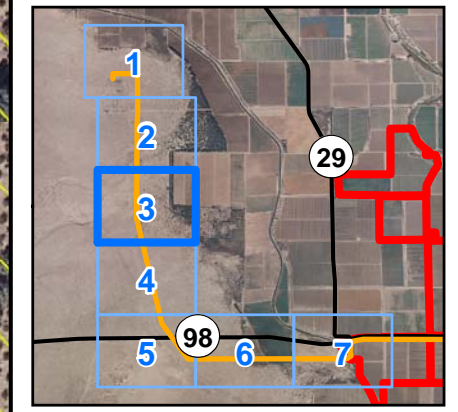
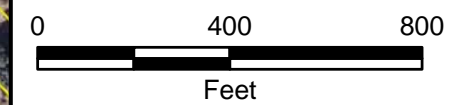























Figure 2
Vegetation and Special Status
Plant Species for CSE
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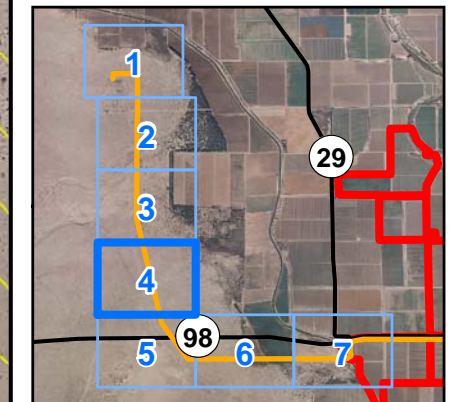
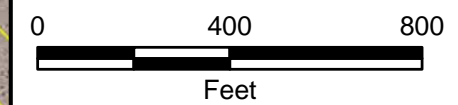
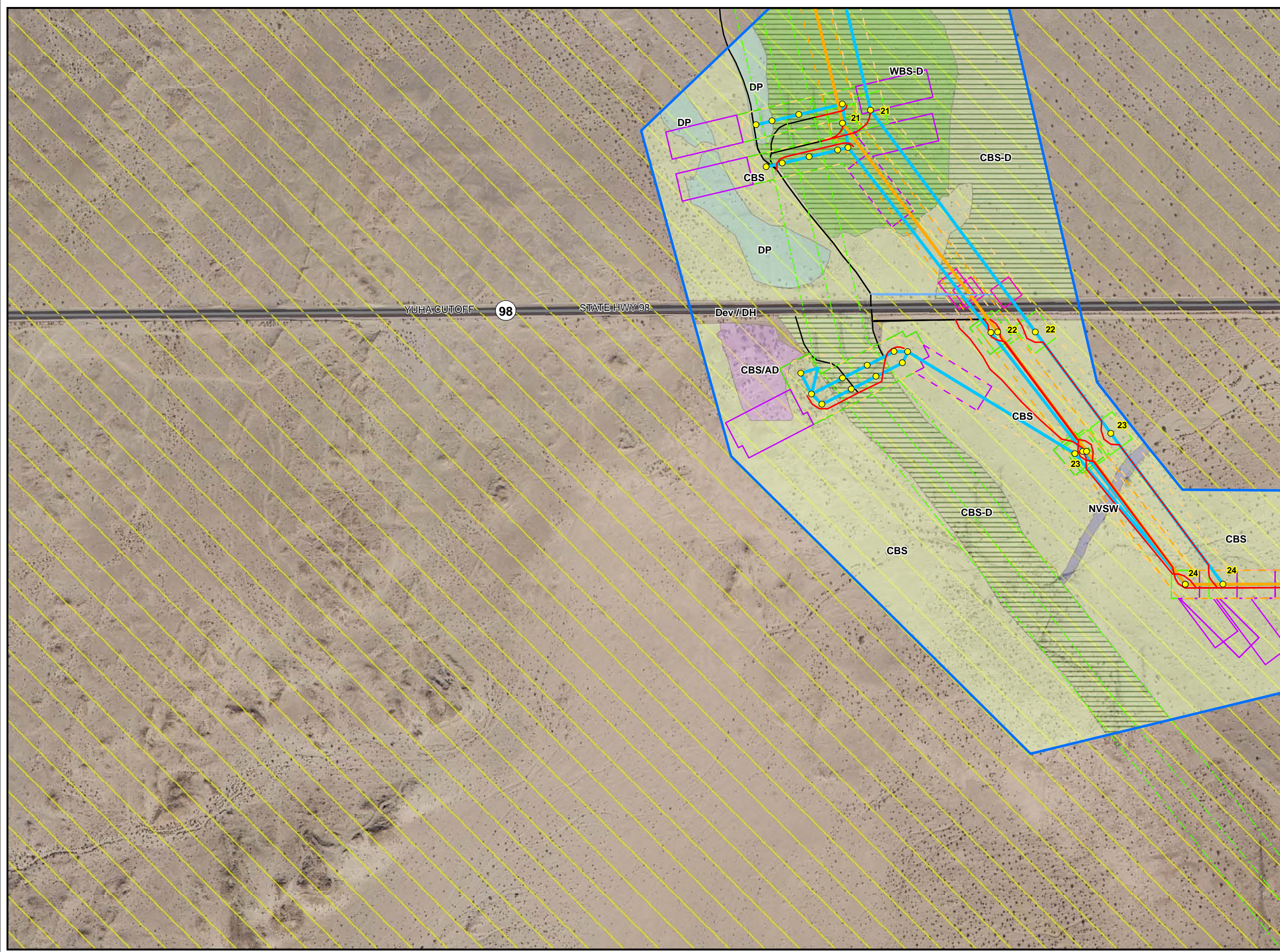


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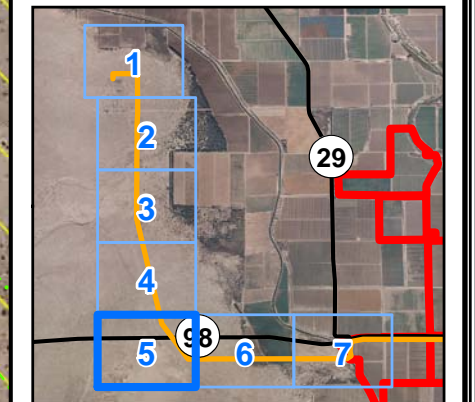
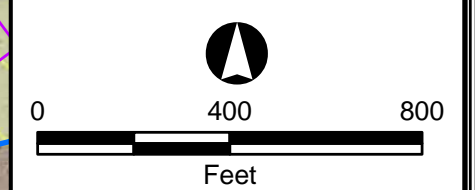


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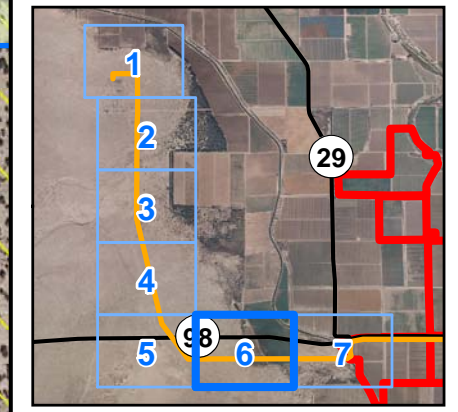
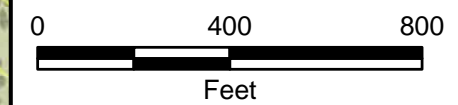
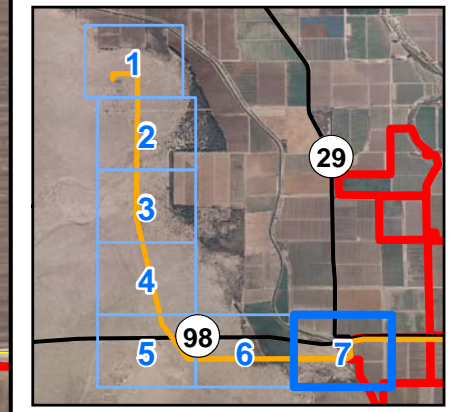
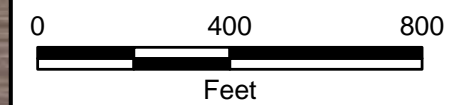


Figure 2
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Plant Species for CSE
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Appendix B – CSE Project Floral Inventory

Family/Scientific Name	Common Name	Habitat	Observed in Survey Area (BLM Lands)
Ephedraceae			
<i>Ephedra trifurca</i>	Three-fork ephedra	DS	Yes
Arecaceae			
<i>Washingtonia robusta</i>	Mexican fan palm	AD	Yes
Agavaceae			
<i>Hesperocallis undulata</i>	Desert lily	DS	Yes
Cyperaceae			
<i>Carex</i> sp.	Sedge	Ditches	No
Poaceae			
<i>Aristida adscensionis</i>	Six-weeks three-awn	DS	Yes
<i>Avena sativa</i>	Cultivated oats		No
<i>Cynodon dactylon</i>	Bermuda grass	AD	Yes
<i>Hilaria rigida</i>	Big Galleta	Wash	Yes
<i>Leptochloa</i> sp.	Sprangletop	Ditches	No
<i>Phragmites australis</i>	Common reed	Canals	No
<i>Poa</i> sp.	Bluegrass	AD	No
<i>Schismus arabicus</i>	Arabian schismus	DS	Yes
Typhaceae			
<i>Typha latifolia</i>	Cattails	Canals	No
Amaranthaceae (inc. Chenopodiaceae)			
<i>Atriplex elegans</i> var. <i>fasciculata</i>	Wheelscale	AD	No
<i>Atriplex polycarpa</i>	Allscale	DS	Yes
<i>Atriplex canescens</i>	Shadscale	DS	Yes
<i>Atriplex lentiformis</i>	Big saltbush	DS	Yes
<i>Bassia hyssopifolia</i>	Five-hook bassia	AD	No
<i>Suaeda</i> sp.	Sea-blight	DS	No
Apocynaceae			
<i>Nerium oleander</i>	Oleander	AD	Yes
Asteraceae			
<i>Ambrosia dumosa</i>	White Bursage	DS	Yes
<i>Ambrosia salsola</i>	Cheesebush	Wash	Yes
<i>Baccharis pilularis</i>	Coyote bush	DS	No
<i>Baileya pauciradiata</i>	Short-ray desert marigold	DS	Yes
<i>Chaenactis stevioides</i>	Desert pincushion	DS	Yes
<i>Chloracantha spinosa</i> var. <i>spinosa</i>	Mexican devil weed	AD	No
<i>Dicoria canescens</i>	Desert dicoria	Wash	Yes
<i>Encelia farinosa</i>	Brittlebush	DS	Yes
<i>Encelia frutescens</i>	Rayless encelia	DS	Yes
<i>Geraea canescens</i>	Desert sunflower	DS	Yes
<i>Isocoma acradenia</i>	Goldenbush	DS	Yes

<i>Malacothrix glabrata</i>	Desert dandelion	DS	Yes
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles	DS	Yes
<i>Pluchea serricea</i>	Arrow-weed	Canal Banks	No
<i>Psathyrotes ramosissima</i>	Velvet rosettes	DS	Yes
<i>Rafinesquiaineo mexicana</i>	Desert chicory	DS	Yes
Bignoniaceae			
<i>Chilopsis linearis</i>	Desert willow	Wash	No
Boraginaceae			
<i>Cryptantha angustifolia</i>	Narrow-leaf cryptantha	DS	Yes
<i>Cryptantha maritima</i>	White-hair cryptantha	DS	Yes
<i>Pectocarya</i> sp.	Pectocarya	DS	Yes
Brassicaceae			
<i>Brassica tournefortii</i>	Sahara mustard	DS	Yes
<i>Descurainia sophia</i>	Tansy mustard	DS	Yes
<i>Dithyrea californica</i>	Spectacle-pod	DS	Yes
<i>Lepidium nitidum</i>	Shining peppergrass	VP	Yes
<i>Streptanthella longirostris</i>	Long-beak twist flower	DS	Yes
Cactaceae			
<i>Cylindropuntia wolfii</i>	Wolf's cholla	DS/Wash	Yes
Caryophyllaceae			
<i>Achyronychia cooperi</i>	Onyx flower	DS	Yes
Ehretiaceae			
<i>Tiquilia palmeri</i>	Palmer's coldenia	DS	Yes
<i>Tiquilia plicata</i>	Plicate coldenia	DS	Yes
Euphorbiaceae			
<i>Chamaesyce micromera</i>	Sonora sandmat	DS	Yes
<i>Croton californicus</i>	California croton	DS/Wash	Yes
<i>Stillingia spinulosa</i>	Annual stillingia	DS	Yes
Fabaceae			
<i>Acacia greggii</i>	Catclaw	Wash	Yes
<i>Astragalus aridus</i>	Parch locoweed	Wash terraces	Yes
<i>Cercidium floridum</i> ssp. <i>floridum</i>	Blue palo verde	Wash/Planted	No
<i>Dallea mollissima</i>	Soft prairie clover	DS	Yes
<i>Lupinus arizonicus</i>	Arizona lupine	DS	Yes
<i>Lupinus concinnus</i>	Bajada lupine	DS	Yes
<i>Medicago sativa</i>	Alfalfa	AD	No
<i>Olneya tesota</i>	Ironwood	Wash	Yes
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Honey mesquite	Wash	Yes
<i>Prosopis pubescens</i>	Screw bean mesquite	Wash	No
<i>Psoralea schottii</i>	Indigo bush	DS	Yes
<i>Psoralea spinosa</i>	Smoke tree	Wash	Yes
Hydrophyllaceae			
<i>Namahispidium</i> var. <i>spathulatum</i>	Rough purple mat	Wash	Yes
Krameriaceae			
<i>Krameria grayi</i>	White rhatany	DS	Yes
Malvaceae			
<i>Eremalche exilis</i>	Trailing mallow	DS	Yes
<i>Eremalche rotundifolia</i>	Desert five-spot	DS	Yes

<i>Malva parviflora</i>	Cheeseweed	AD	Yes
<i>Malvella leprosa</i>	Alkali mallow	DS	No
<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	Apricot mallow	DS	No
Loasaceae			
<i>Mentzelia dispersa</i>	Nada stick-leaf	DS	Yes
Myrtaceae			
<i>Eucalyptus sideroxylon</i>	Red iron bark	AD	No
Nyctaginaceae			
<i>Abronia villosa</i> var. <i>villosa</i>	Desert sand verbena	DS	Yes
Onagraceae			
<i>Camissonia brevipes</i>	Sun cup	DS	Yes
<i>Oenothera deltoides</i>	Basket evening-primrose	DS	Yes
Orobanchaceae			
<i>Orobanche cooperi</i>	Pine broom-rape	DS	Yes
Plantaginaceae			
<i>Plantago ovata</i>	Woolly plantain	DS	Yes
<i>Plantago patagonica</i>	Desert plantain	DS	Yes
Polemoniaceae			
<i>Langloisia setosissima</i> ssp. <i>setosissima</i>	Bristly langloisia	DS	Yes
<i>Loeseliastrum matthewsii</i>	Desert calico	DS	Yes
Polygonaceae			
<i>Eriogonum deserticola</i>	Imperial buckwheat	DS	Yes
<i>Eriogonum wrightii</i>	Buckwheat	DS	Yes
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	Brittle spineflower	DS	Yes
<i>Chorizanthe rigida</i>	Rigid spineflower	DS	Yes
<i>Rumex obtusifolius</i>	Dock	Ditch	No
Portulacaceae			
<i>Callandrinia ambigua</i>	Desert pot herb	DS	Yes
Rafflesiaceae			
<i>Pilostyles thurberi</i>	Thurber's pilostyles	DS	Yes
Resedaceae			
<i>Oligomeris linifolia</i>	Narrow-leaf oligomeris	DS	Yes
Solanaceae			
<i>Datura wrightii</i>	Jimson weed	DS	Yes
<i>Lycium brevipes</i> var. <i>brevipes</i>	Common desert thorn	Wash	Yes
<i>Solanum elaeagnifolium</i>	Silver-leaf horse-nettle	AD	No
Tamaricaceae			
<i>Tamarix ramosissima</i>	Tamarisk	Ditch, Canal	Yes
<i>Tamarix aphylla</i>	Athel	DS	Yes
Viscaceae			
<i>Phoradendron californicum</i>	Desert mistletoe	DS	Yes
Zygophyllaceae			
<i>Larrea tridentata</i>	Creosote bush	DS	Yes
<i>Tribulus terrestris</i>	Puncture vine	DS	No

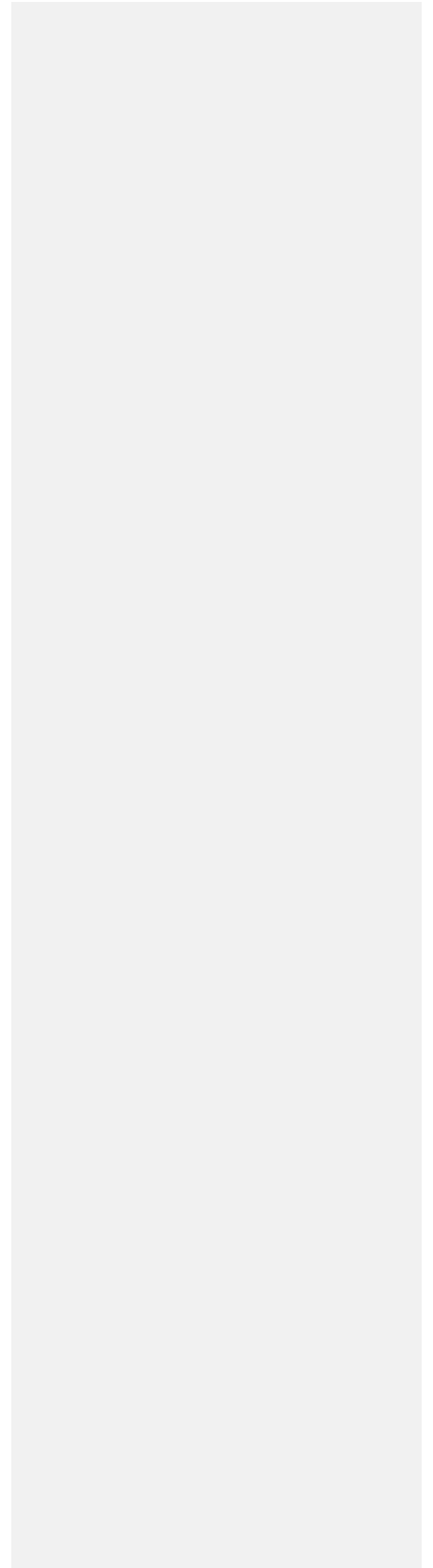
Appendix C – Surveyor Qualifications

John Messina, Lead Botanist. Led plant surveys and prepared special status plants report. John Messina has been a botanist in southern California for 20+ years and has worked primarily in San Diego and Imperial counties. He has worked for several large international consulting firms and is presently working as an independent contractor. He has conducted numerous botanical, rare plant and vegetation surveys and prepared numerous biotechnical reports as well as biological sections to CEQA and NEPA documents. He has worked on several projects in the Sonoran Desert of San Diego and Imperial counties. His work in the Yuha Desert includes surveys for CSE in 2009-2011 and surveys for SDGE's Sunrise Powerlink in 2006-2008. Mr. Messina received his B.S. from U.C. Berkeley in Conservation and Resource Studies and his M.S. from U.C. Davis in Ecology. He is an adjunct faculty member at several local colleges and universities in San Diego and Orange counties where he teaches botany, biology and ecology.

Shawn Johnston, Project Botanist. Shawn Johnston graduated from San Diego State University with a B.S. in evolution and systematics where he focused on the taxonomy Southern California plants. Over the past 10 years, he has gained considerable botanical experience leading and participating in rare plant surveys throughout the Southwestern United States. While his main area of expertise is within the coastal slopes and mountains of Southern California, he also has notable experience with the floras of both the Sonoran and Mojave deserts of California. Some of his more recent botanical projects to date include: sensitive plant surveys for both the SDG&E Sunrise Powerlink Project (Both alternative and final alignments), and Calico Solar a proposed 5000 acre solar energy site in the Mojave desert.

Brandt Primrose, Project Botanist. Brandt Primrose graduated from San Diego State University with a B.S. in Biology with an emphasis in Plant taxonomy focusing on Southern California plants. He has had 12 years of experience performing rare plants throughout southern California within many different habitats. Over several years he has performed focused surveys throughout the Sonoran and Mojave deserts of California. Some of his more recent botanical projects to date include: sensitive plant surveys for both the SDG&E Sunrise Powerlink Project (Both alternative and final alignments), and CNF Rare Plant Surveys SDG&E.

**APPENDIX 5 – MOUNTAIN PLOVER SURVEY
REPORT**





March 11, 2011

Geary Hund
United States Fish and Wildlife Service
Carlsbad Field Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92009

Re: Post Survey Notification of Focused Survey Results for the Mountain Plover on the Centinela Solar Energy, LLC Project

Dear Geary,

This letter summarizes the results of the 2011 winter surveys for Mountain Plover (*Charadrius montanus*) conducted within the Centinela Solar Energy, LLC (CSE) Project survey area. CSE proposes to construct, operate, and maintain a solar electric power generating facility in Imperial County, California, approximately eight miles southwest of El Centro, California. The proposed project includes the construction of a photovoltaic (PV) solar electric power generating facility (the "CSE Facility") on approximately 2,165 acres of private land and an associated electric line (the "Gen-tie Line") that will cross private land and also federal land managed by the Department of the Interior, Bureau of Land Management (BLM) (**Figure 1**). It will electrically interconnect the CSE Facility with the Imperial Valley Substation. The CSE Facility and Gen-tie Line are referred to collectively as the CSE Project. The area encompassing the CSE Facility and the portion of the Gen-tie Line that crosses agricultural lands (suitable Mountain Plover habitat) is referred to herein as the MOPL survey area (**Figure 2**). The survey area is located in Township 16 South, Range 13 East, portions of Section 31; Township 17 South, Range 13 East, portions of Section 4, 5, 9, 10, 16, and 17.

The BLM El Centro Field Office suggested that CSE conduct protocol Mountain Plover surveys to provide baseline data to be used in BLM's Section 7 consultation with the U.S. Fish and Wildlife Service (Service). The survey guidance (USFWS 2011) was developed by the Service's Carlsbad Field Office and provided to Heritage Environmental Consultants by the BLM.

Methods

Mountain Plovers are known to winter in the Imperial Valley, commonly foraging and roosting in agricultural fields in different stages of cropping cycles. They prefer alfalfa fields (less than 9.84 inches in height, or mowed); Bermuda grass (less than 9.84 inches in height, dormant, mowed, or burned); actively grazed fields; fallow fields; and bare fields (tilled, plowed, or furrowed; Andres and Stone 2009).



Qualified biologists experienced in the identification of North American birds by sight and sound, including Mountain Plover detection and identification, performed the winter surveys. Suitable habitat was identified in the survey area by driving to each field and assessing vegetation height. Observation points were set up so that each field could be sufficiently observed from one point (**Figure 2**). A total of 16 observation points were established. Two observers were at each observation point; one biologist observed a single field (never more than 80 acres) while the other biologist observed the opposite field. Spotting scopes and binoculars were used to scan each field for a minimum of 30 minutes per field per observer per field visit.

A total of three surveys were conducted between December 1 and February 28, separated by a minimum of five days. Surveys were conducted between the hours of 8 a.m. and 4 p.m. and avoided periods of excessive or abnormal heat, wind, rain, fog, or other inclement weather. Surveys were not conducted if winds exceeded 10 miles per hour. No more than 600 acres were surveyed per biologist per day.

Existing Conditions

The entire survey area (approximately 2,062 acres) is agricultural land consisting of alfalfa, Bermuda grass, and tilled fields in various stages. The fields surveyed ranged in size from 50 acres to 80 acres (see Table 1).

Survey Results

Survey events occurred on three separate occasions in February (surveys were performed on February 9 and 10, February 15 and 16, and February 22 and 23, 2011). A total of 16 observation points were sampled (sometimes less if habitat became unsuitable between survey events). Weather was generally conducive to Mountain Plover surveys. **Table 1 – Mountain Plover Winter Survey Results** provides general survey information.



Table 1 – Mountain Plover Winter Survey Effort Summary

Date	Observation Point	Field Surveyed	Field Size (Acres)	Habitat	Start/Stop Time ¹	Temp (°F)	Wind Speed (mph)	Weather Conditions
Survey Number 1								
02/09/11	MP001	MP001 South	50	Alfalfa (12")	1310/1340	72	0	Clear
		MP001 North	60	Bermuda (10-12")	1310/1340	-	-	-
	MP002	MP002 West	80	Bermuda (cut 2-3")	1350/1425	-	-	-
		MP002 East	80	Bermuda (bare and sprouting/5-6")	1350/1425	-	-	-
	MP003	MP003 West	80	Bare (tilled)	1440/1514	-	-	-
		MP003 East	80	Bare (tilled)	1440/1514	-	-	-
	MP004	MP004 West	80	Bare (tilled)	1530/1600	-	-	-
		MP004 East	80	Bermuda (cut 2-3")	1530/1600	70	1-2	Clear
Acres Surveyed (per biologist)			295					
Acres Surveyed (per hour/per biologist)			137					
02/10/11	MP005	MP005 West	80	Alfalfa (6 ")	0825/0858	56	0	Clear
		MP005 East	80	Alfalfa (6")	0825/0858	-	-	-
	MP006	MP006 West	80	Bare (tilled)	0906/0941	-	-	-
		MP006 East	80	Bermuda (burned)	0906/0941	-	-	-
	MP007	MP007 West	80	Bermuda (burned)	0949/1019	-	-	-
		MP007 East	80	Bermuda (burned)	0949/1019	-	-	-
	MP008	MP008 West	80	Bermuda (burned and sprouting)	1031/1104	-	-	-
		MP008 East	80	Bermuda (burned and sprouting)	1031/1104	-	-	-
	MP009	MP009 West	53	Bermuda (cut 2-3")	1112/1143	-	-	-
		MP009 East	53	Bermuda (cut 2-3")	1112/1143	-	-	-
	MP010	MP010 West	53	Bermuda (cut 2-3")	1155/1234	-	-	-
		MP010 East	53	Bermuda (cut 2-3")	1155/1234	-	-	-
	MP011	MP011 NE	40	Bermuda (cut 3-4")	1350/1420	-	-	-
		MP011 NE	40	Bermuda (cut 3-4")	1350/1420	-	-	-
MP011 NW		60	Bermuda (15") UNSUITABLE	N/S	-	-	-	
MP011 South		80	Bermuda (15") UNSUITABLE	N/S	-	-	-	



	MP012	MP012 East	80	Bermuda (burned)	1427/1457	-	-	-
	MP013	MP013 West	80	Bermuda (burned and 3" sprouts)	1425/1455	-	-	-
	MP014	MP014 North	80	Alfalfa (6-8")	1500/1531	-	-	-
	MP015	MP015 North	70	Alfalfa (6-15")	1536/1608	-	-	-
		MP015 South	70	Alfalfa (6-8")	1536/1608	-	-	-
	MP016	MP016 North	60	Alfalfa (6-8")	1502/1532	70	3-5	Clear
Acres Surveyed (per biologist)			686					
Acres Surveyed (per hour/per biologist)			107					
Survey Number 2								
02/15/11	MP001	MP001 South	50	Alfalfa (12+") UNSUITABLE	N/S	63	1-2	Clear
		MP001 North	60	Bermuda (12+") UNSUITABLE	N/S	-	-	-
	MP002	MP002 West	80	Bermuda (cut 2-3")	0838/0909	-	-	-
		MP002 East	80	Bermuda (bare and sprouting/5-6")	0838/0909	-	-	-
	MP003	MP003 West	80	Bare (tilled)	0916/0956	-	-	-
		MP003 East	80	Bare (tilled)	0916/0956	-	-	-
	MP004	MP004 West	80	Bare (tilled)	1004/1047	-	-	-
		MP004 East	80	Bermuda (cut 2-3")	1004/1047	-	-	-
	MP005	MP005 West	80	Alfalfa (8-10")	1059/1141	-	-	-
		MP005 East	80	Alfalfa (8-10")	1059/1141	-	-	-
	MP006	MP006 West	80	Bare (tilled)	1300/1340	-	-	-
		MP006 East	80	Bermuda (burned)	1300/1340	-	-	-
	MP007	MP007 West	80	Bermuda (burned)	1350/1427	-	-	-
		MP007 East	80	Bermuda (burned)	1350/1427	-	-	-
	MP008	MP008 West	80	Bermuda (burned and sprouting)	1432/1502	-	-	-
		MP008 East	80	Bermuda (burned and sprouting)	1432/1502	-	-	-
	MP009	MP009 West	53	Bermuda (cut 2-3")	1510/1540	-	-	-
		MP009 East	53	Bermuda (cut 2-3")	1510/1540	-	-	-
	MP010	MP010 West	53	Bermuda (cut 2-3")	1544/1617	-	-	-
		MP010 East	53	Bermuda (cut 2-3")	1544/1617	77	5	Clear
Acres Surveyed (per biologist)			666					
Acres Surveyed (per hour/per biologist)			123					



02/16/11	MP011	MP011 NE	40	Bermuda (cut 3-4")	0829/0909	61	1-2	Clear
		MP011 NE	40	Bermuda (cut 3-4")	0829/0909	-	-	-
		MP011 NW	60	Bermuda (15") UNSUITABLE	N/S	-	-	-
		MP011 South	80	Bermuda (15") UNSUITABLE	N/S	-	-	-
	MP012	MP012 East	80	Bermuda (burned)	0915/1002	-	-	-
	MP013	MP013 West	80	Bermuda (burned and 3" sprouts)	9019/1001	-	-	-
	MP014	MP014 North	80	Alfalfa (6-8")	1007/1052	-	-	-
	MP015	MP015 North	70	Alfalfa (6-15")	1058/1128	-	-	-
		MP015 South	70	Alfalfa (6-8")	1058/1128	-	-	-
MP016	MP016 North	60	Alfalfa (6-8")	1010/1051	68	1-5	Clear	
Acres Surveyed (per biologist)			260					
Acres Surveyed (per hour/per biologist)			77					
Survey Number 3								
02/22/11	MP001	MP001 South	50	Alfalfa (12+") UNSUITABLE	N/S	82	1-3	Clear
		MP001 North	60	Bermuda (12+") UNSUITABLE	N/S	-	-	-
	MP002	MP002 West	80	Bermuda (cut 2-3")	1339/1409	-	-	-
		MP002 East	80	Bermuda (bare and sprouting 5-6")	1339/1409	-	-	-
	MP003	MP003 West	80	Bare (tilled)	1438/1510	-	-	-
		MP003 East	80	Bare (tilled)	1438/1510	-	-	-
	MP004	MP004 West	80	Bare (tilled)	1534/1605	-	-	-
		MP004 East	80	Bermuda (cut 2-3")	1534/1605	-	-	-
	MP005	MP005 West	80	Alfalfa (12-14")	1623/1653	-	-	-
		MP005 East	80	Alfalfa (10-11")	1623/1653	60	1-3	Clear
Acres Surveyed (per biologist)			320					
Acres Surveyed (per hour/per biologist)			105					
02/23/11	MP006	MP006 West	80	Bare (tilled)	0840/0917	64	0-3	Clear
		MP006 East	80	Bermuda (burned)	0840/0917	-	-	-
	MP007	MP007 West	80	Bermuda (burned and sprouting 1-2")	0920/0950	-	-	-



	MP007 East	80	Bermuda (burned and sprouting 1-2")	0920/0950	-	-	-
MP008	MP008 West	80	Bermuda (burned and sprouting 2-3")	0958/1028	-	-	-
	MP008 East	80	Bermuda (burned and sprouting 2-3")	0958/1028	-	-	-
MP009	MP009 West	53	Bermuda (cut 2-3")	1037/1107	-	-	-
	MP009 East	53	Bermuda (cut 2-3")	1037/1107	-	-	-
MP010	MP010 West	53	Bermuda (cut 2-3")	1115/1146	-	-	-
	MP010 East	53	Bermuda (cut 2-3")	1115/1146	-	-	-
MP011	MP011 NE	40	Bermuda (cut 3-4")	1223/1253	-	-	-
	MP011 NE	40	Bermuda (cut 3-4")	1223/1253	-	-	-
	MP011 NW	60	Bermuda (15") UNSUITABLE	N/S	-	-	-
	MP011 South	80	Bermuda (15") UNSUITABLE	N/S	-	-	-
MP012	MP012 East	80	Bermuda (burned)	1302/1338	-	-	-
MP013	MP013 West	80	Bermuda (burned and 3" sprouts)	1303/1333	-	-	-
MP014	MP014 North	80	Alfalfa (8-14")	1345/1430	-	-	-
MP015	MP015 North	70	Alfalfa (8-15")	1434/1504	-	-	-
	MP015 South	70	Alfalfa (8-12")	1434/1504	-	-	-
MP016	MP016 North	60	Alfalfa (8-12")	1350/1426	70	5-10	Clear
Acres Surveyed (per biologist)		566					
Acres Surveyed (per hour/per biologist)		93					
Survey Totals							
Acres Surveyed (per biologist/1.5 day survey)		931					
Acres Surveyed (per hour/per biologist)		107					
Total Acres Surveyed per Survey		1,862					

¹ N/S = Not surveyed due to unsuitable habitat.



The majority of the survey area represented suitable Mountain Plover habitat during the surveys; fields that did not represent suitable habitat included MP001 North, MP001 South, MP011 NW and MP001 South. Fields MP005 East and MP005 West, MP014 North, MP015 North, MP015 South, and MP016 North all represented very marginal habitat but were surveyed to be conservative. Although the remainder of the survey area represented suitable Mountain Plover habitat, no Mountain Plovers were observed during the three protocol surveys.

If you have any questions concerning the contents of this notification letter, please contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrick F. Golden".

Patrick Golden
Senior Biologist, Principal

cc: James White, CSE
Dave Wilson, CSE
Jayme Lopez, Bureau of Land Management, El Centro Field Office
Donna Clinton, BLM, El Centro Field Office
Magdalena Rodriquez, California Department of Fish and Game

Attachments



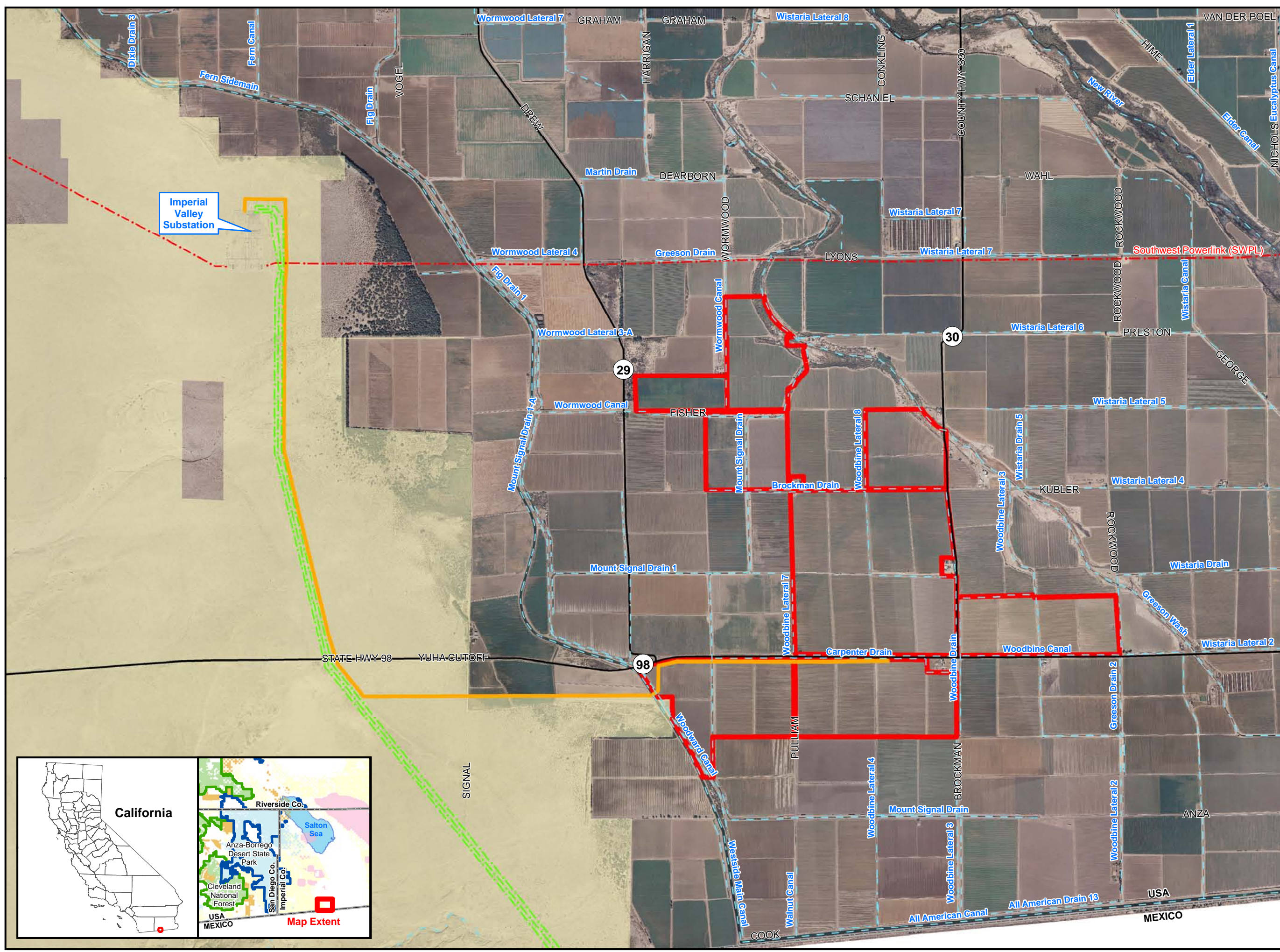
References Cited

Andres, B.A. and K.L. Stone. 2009. Conservation Plan for the Mountain Plover (*Charadrius montanus*), Version 1.0. Manomet Center for Conservation Sciences, Manomet, Massachusetts.

U.S. Fish and Wildlife Service. 2011. Interim Survey Guidance for Wintering Mountain Plover (*Charadrius montanus*) in the Imperial Valley. Unpublished guidance. 1 page.

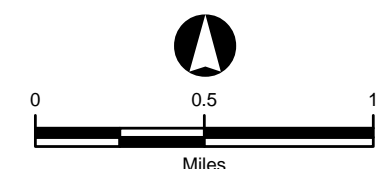
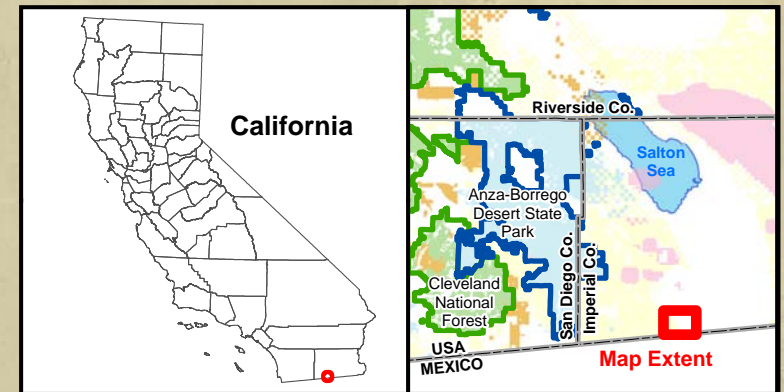
Centinela

Figure 1



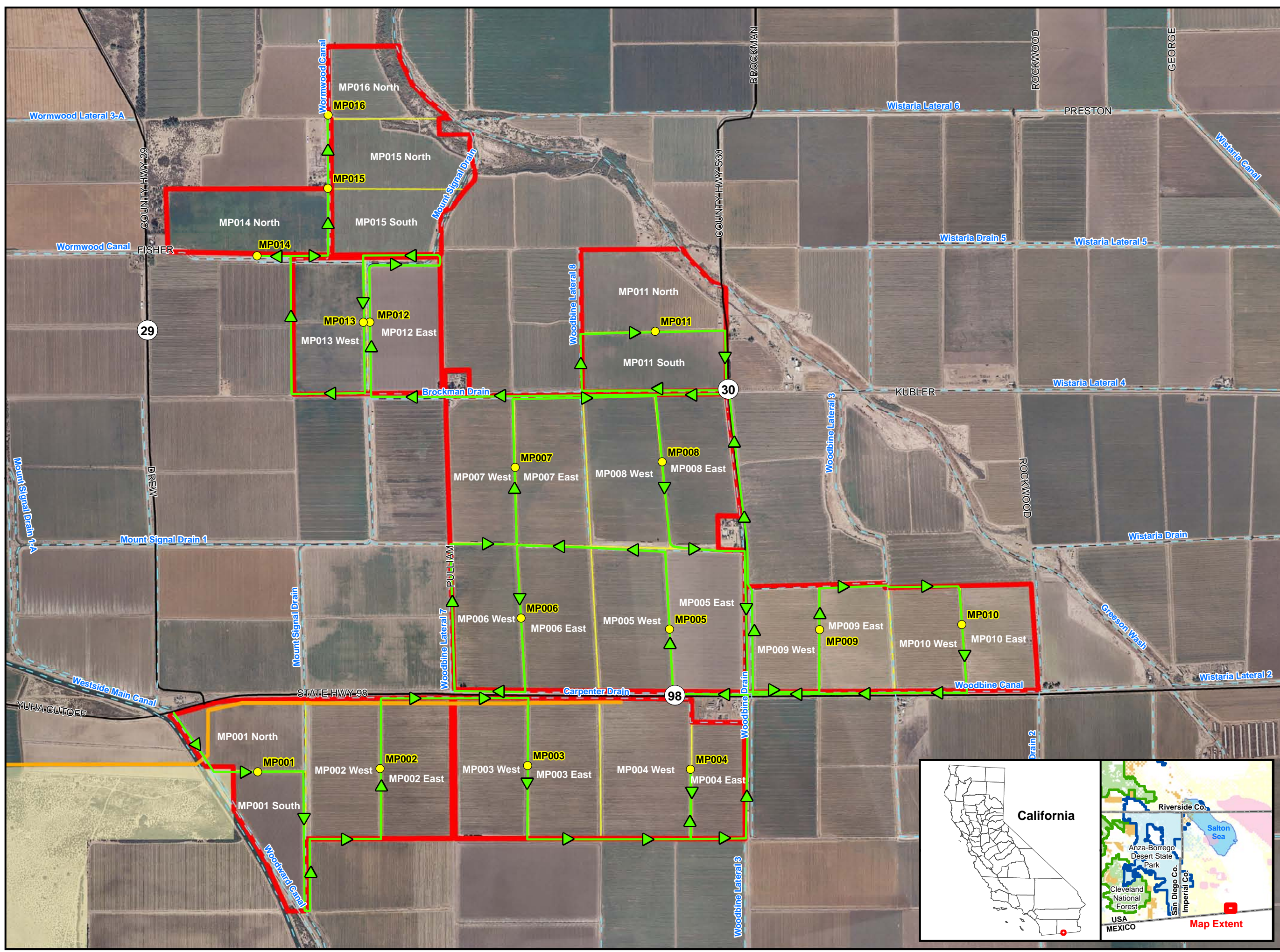
Legend

- Existing 500 kV Transmission Line
- Existing 230 kV Transmission Line
- Gen-tie Line Route
- Stream, Major Canal and/or Irrigation Canal
- Major Road
- County Boundary
- CSE Facility
- Major Water Body
- Cleveland National Forest Congressional Boundary
- State Park Boundary
- Jurisdictional Land Ownership
 - Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



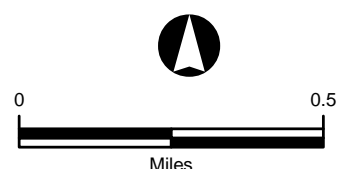
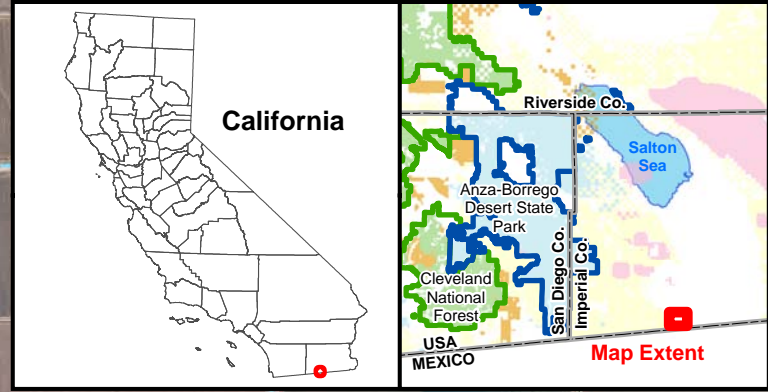
State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

Figure 2
Mountain Plover Survey Points



Legend

- Mountain Plover Survey Points
- Survey Route
- Gen-tie Line Route
- - - Stream, Major Canal and/or Irrigation Canal
- Major Road
- County Boundary
- Field Identifier
- CSE Facility
- Major Water Body
- Cleveland National Forest Congressional Boundary
- State Park Boundary
- Jurisdictional Land Ownership
 - Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

CENTINELA SOLAR ENERGY PROJECT
BIOLOGICAL TECHNICAL REPORT
ADDENDUM 1



August 25, 2011

Ms. Sharon Tyson, Wildlife Biologist
Bureau of Land Management, El Centro Field Office
1661 South 4th Street
El Centro CA 92243

RE: Centinela Solar Energy Project Biological Technical Report Addendum 1

Dear Ms. Tyson,

This letter serves as Addendum 1 to the Biological Technical Report (BTR) for the Centinela Solar Energy Project and associated Gen-tie line in Imperial County, California (dated August 18, 2011). The purpose of this letter is to describe minor changes to the layout and disturbance acreage of the proposed Gen-tie route, Alternative 1, Alternative 1 with Alternative 4, and Alternative 6. These changes were made to avoid impacts to sensitive resources.

Changes to these alternatives would result in less than 1-acre of additional permanent disturbance and less than 0.5-acres of additional temporary disturbance (**Attachment 1; Table 1**). The change would also result in a slightly different alignment of project components under these alternatives (**Attachment 2; Figures 1-8 and Vegetation Mapbook**).

Impacts resulting from the changes in alignment and acreage of disturbance are very minor for all four of the revised alternatives. These were re-evaluated in the context of the impact analysis in the BTR; the impact analysis therein is accurate in the context of the changes that were and does not need to be revised.

The revised tables and figures contained in **Attachments 1 and 2** represent the only changes to the BTR as a result of these modified alternatives. **Attachment 1** contains several tables with updated disturbance acreages that replace the corresponding tables in the BTR. **Attachment 2** (which replaces Attachment 2 in the BTR) contains revised figures that depict the new alignment.

Please feel free to contact Patrick Golden (303-618-7910) if you have any questions concerning these changes to the BTR.

Sincerely,

A handwritten signature in blue ink that reads "Patrick F. Golden".

Patrick Golden



Attachments:

- Attachment 1 – Replacement Tables
- Attachment 2 – Replacement Figures



Attachment 1 – Replacement Tables



Table 1 – Proposed Impacts for the Project

Project Component	CSE Facility Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
Permanent Impacts											
CSE Facility	1920.10		1920.10								
Ring Bus Switchyard										4.88	4.88
Gen-tie Line											
Access Road Total		4.49	4.49	4.49	5.11	5.10	4.49	4.86	4.85	2.52	2.40
Structure Footings		0.04	0.04	0.05	0.04	0.05	0.06	0.05	0.06	0.04	0.04
Gen-tie Line Total		4.54	4.54	4.54	5.15	5.16	4.55	4.91	4.91	2.57	2.44
Permanent Impacts Total			1924.64								
Temporary Impacts											
Gen-tie Line											
Pulling & Tensioning Sites		5.34		5.34	5.61	5.61	6.49	6.76	6.76	4.02	4.52
Wire Splicing Site		0.96		0.96	1.15	1.15	0.96	1.15	1.15	0.00	0.00
Access Road		0.18		0.18	0.44	0.44	0.18	0.44	0.44	0.00	0.16
Guard Structures		0.73		0.73	0.61	0.73	0.73	0.73	0.73	0.23	0.58
Tower Construction Pads		10.04		10.03	10.05	10.04	10.03	10.03	10.03	4.30	4.88
Temporary Impacts Total		17.25	17.25	17.25	17.86	17.98	18.40	19.11	19.11	8.55	10.14
Total Impacts											
TOTAL PROJECT IMPACTS			1941.89								



Table 7 – Proposed Impacts to Vegetation Communities by Alternative

Project Component	CSE Facility Impacts (acres)	Gen-tie Line Impacts (acres)	Total (acres)	Alternative 1 Impacts (acres)	Alternative 2 Impacts (acres)	Alternative 3 Impacts (acres)	Alternative 1 with Alternative 4 Undercrossing Impacts (acres)	Alternative 2 with Alternative 4 Undercrossing Impacts (acres)	Alternative 3 with Alternative 4 Undercrossing Impacts (acres)	Alternative 5 Impacts (acres)	Alternative 6 Impacts (acres)
Permanent Impacts											
CSE Facility											
Agriculture (AG)	1908.04										
Arrow Weed Scrub (AS)	0.09										
Arrow Weed Scrub - Disturbed (AS-D)	0.61										
Arrow Weed Scrub / Tamarisk Scrub (AS/TS)	0.06										
Arrow Weed Scrub / Tamarisk Scrub - Disturbed (AS/TS-S)	0.07										
Big Salt Bush Scrub - Disturbed (BSS-D)	3.81										
Developed / Disturbed (Dev)	3.65										
Palo Verde Woodland (possibly planted) (PVW)	0.38										
Tamarisk Scrub - Disturbed (TS-D)	3.38										
CSE Facility Total	1920.10		1920.10								
Ring Bus Switchyard											
Ring Bus Switchyard											
Agriculture (AG)										3.62	3.62
Access Road											
Agriculture (AG)										1.27	1.27
Ring Bus Switchyard Total										4.88	4.88
Gen-tie Line											
Access Roads											
Creosote Bush-White		4.02		4.02	4.21	4.21	4.00	4.03	4.02	2.33	2.13



Bursage Scrub (CBS)											
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0.12		0.12	0.33	0.33	0.25	0.35	0.35	0.15	0	
Developed / Disturbed (Dev)	0.13		0.13	0.10	0.10	0.02	0.02	0.02	0.02	0.00	
Encelia-White Bursage Wash Scrub (EWBS)	0.06		0.06	0.13	0.13	0.06	0.13	0.13	0	0	
Non-Vegetated Sandy Wash (NVSW)	0.02		0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02	
Smoke Tree Wash Scrub (STWS)	0.07		0.07	0.18	0.18	0.07	0.18	0.18	0	0	
White Bursage Scrub - Disturbed (WBS-D)	0.06		0.06	0.13	0.13	0.06	0.13	0.13	0	0.24	
Access Road Total	4.49	4.49	4.49	5.11	5.10	4.49	4.86	4.85	2.52	2.40	
Structure Footings											
Agriculture (AG)	0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Creosote Bush-White Bursage Scrub (CBS)	0.03		0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.01	
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0.002		0.002	0.003	0.003	0.005	0.005	0.005	0.01	0	
Desert Pavement (DP)	0		0	0	0	0	0	0	0	0.003	
Developed / Disturbed (Dev)	0.001		0.001	0	0	0	0	0	0	0	
Encelia-White Bursage Wash Scrub (EWBS)	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0	0	
Smoke Tree Wash Scrub (STWS)	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0	0	
White Bursage Scrub - Disturbed (WBS-D)	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0	0.01	
Footings Total	0.04	0.04	0.05	0.04	0.05	0.06	0.05	0.06	0.04	0.04	
Gen-tie Line Total	4.54	4.54	4.54	5.15	5.16	4.55	4.91	4.91	2.57	2.44	
Permanent Impacts Total		1924.64									
Temporary Impacts											
Gen-tie Line											



Pulling & Tensioning Sites											
Creosote Bush-White Bursage Scrub (CBS)	5.34		5.34	5.61	5.61	5.70	5.91	5.91	3.64	1.71	
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0		0	0	0	0.49	0.85	0.85	0	0	
Creosote Bush-White Bursage Scrub/Alkali Dep (CBS/AD)	0		0	0	0	0	0	0	0.38	0	
Developed / Disturbed (Dev)	0		0	0	0	0.30	0	0	0	0	
White Bursage Scrub - Disturbed (WBS-D)	0		0	0	0	0	0	0	0	2.82	
Wire Splicing Site											
Creosote Bush-White Bursage Scrub (CBS)	0.96		0.96	1.15	1.15	0.96	1.15	1.15	0	0	
Access Road											
Creosote Bush-White Bursage Scrub (CBS)	0.13		0.13	0.32	0.32	0.13	0.32	0.32	0	0.13	
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0.04		0.04	0.12	0.12	0.04	0.12	0.12	0	0.02	
Guard Structures											
Agriculture (AG)	0.07		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	
Creosote Bush-White Bursage Scrub (CBS)	0.28		0.28	0.19	0.31	0.28	0.31	0.31	0.04	0.04	
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0.22		0.22	0.19	0.19	0.22	0.19	0.19	0	0.30	
Developed / Disturbed (Dev)	0.16		0.16	0.17	0.17	0.16	0.17	0.17	0.13	0.17	
Tower Construction Pads											
Creosote Bush-White Bursage Scrub (CBS)	7.75		7.75	7.91	7.90	7.75	7.90	7.90	3.19	2.46	
Creosote Bush-White Bursage Scrub - Disturbed (CBS-D)	0.81		0.81	0.86	0.86	0.92	0.85	0.85	1.07	0	
Creosote Bush-White Bursage Scrub/Alkali Dep	0		0	0	0	0	0	0	0.04	0	



(CBS/AD)											
Desert Pavement (DP)		0		0	0	0	0	0	0	0	0.27
Developed / Disturbed (Dev)		0.19		0.19	0.08	0.08	0.09	0.08	0.08	0	0.04
Encelia-White Bursage Wash Scrub (EWBS)		0.40		0.40	0.40	0.40	0.40	0.40	0.40	0	0
Mesquite Bosque (MB)		0.09		0.09	0.00	0.00	0.09	0.00	0.00	0	0
Smoke Tree Wash Scrub (STWS)		0.41		0.41	0.41	0.41	0.41	0.41	0.41	0	0
White Bursage Scrub - Disturbed (WBS-D)		0.39		0.39	0.39	0.39	0.39	0.39	0.39	0	2.11
Temporary Impacts Total		17.25	17.25	17.25	17.86	17.98	18.40	19.11	19.11	8.55	10.14
TOTAL PROJECT IMPACTS			1941.89								



Table 8 – Proposed Impacts to FTHL Habitat by Alternative

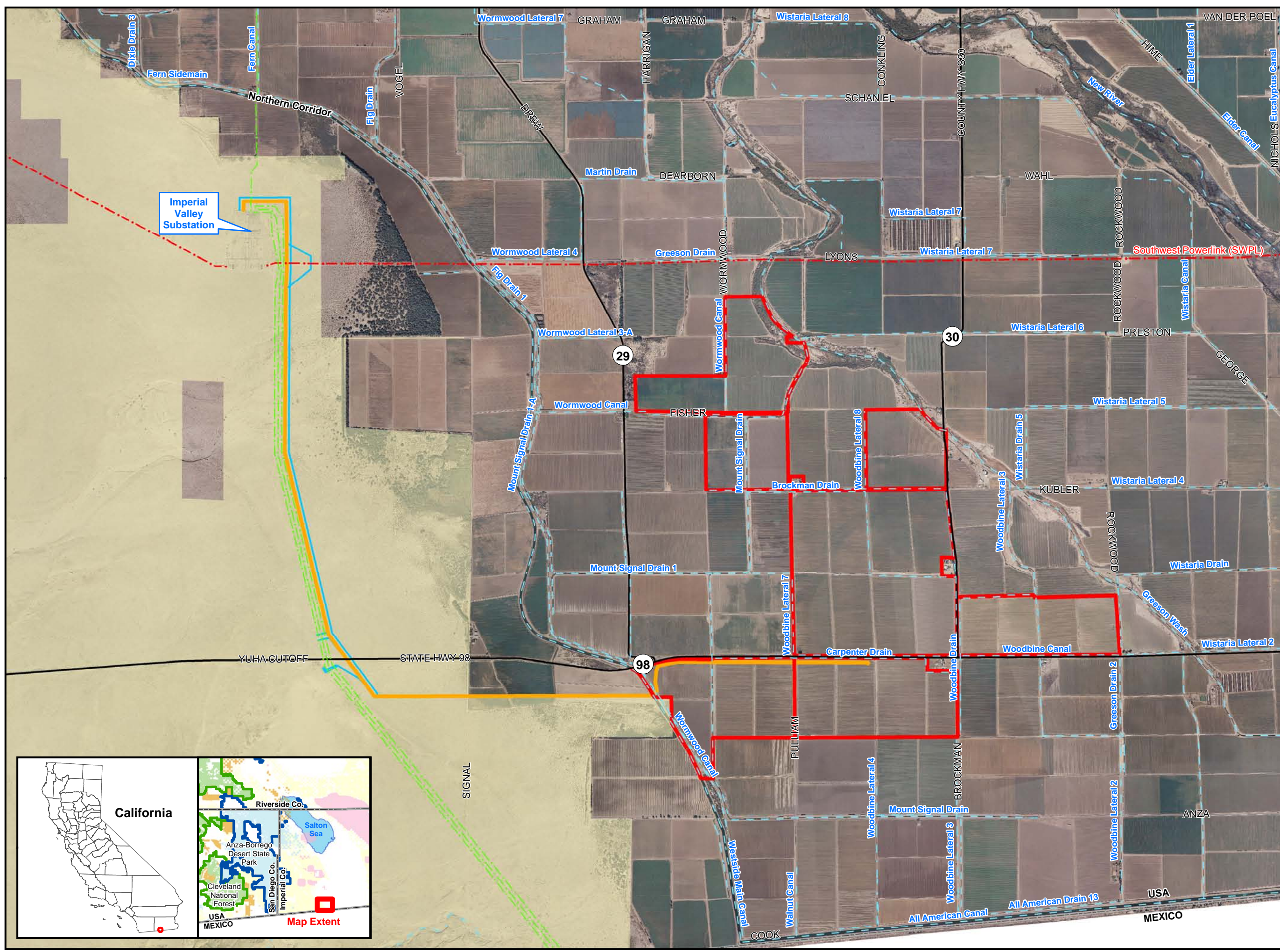
	Proposed Alt.	Alt. 1	Alt. 2	Alt. 3	Alt. 1 with Alt 4 Undercrossing	Alt. 2 with Alt 4 Undercrossing	Alt. 3 with Alt 4 Undercrossing	Alt. 5	Alt. 6
Permanent Impacts	4.54	4.54	5.15	5.16	4.55	4.91	4.91	2.57	2.44
Temporary Impacts	17.25	17.25	17.86	17.98	18.40	19.11	19.11	8.55	10.14



Attachment 2 – Replacement Figures

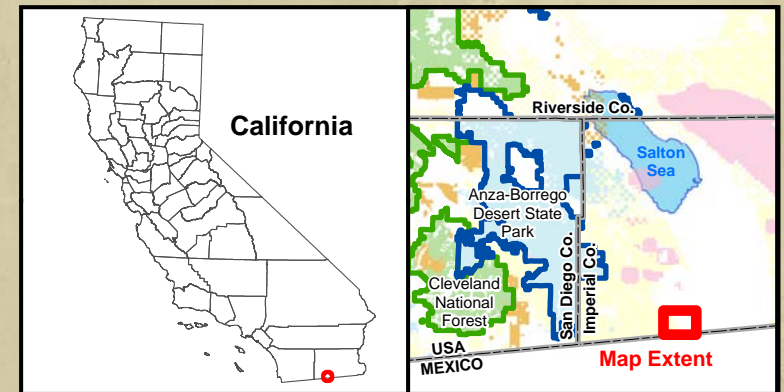
Centinela

Figure 1 Project Location



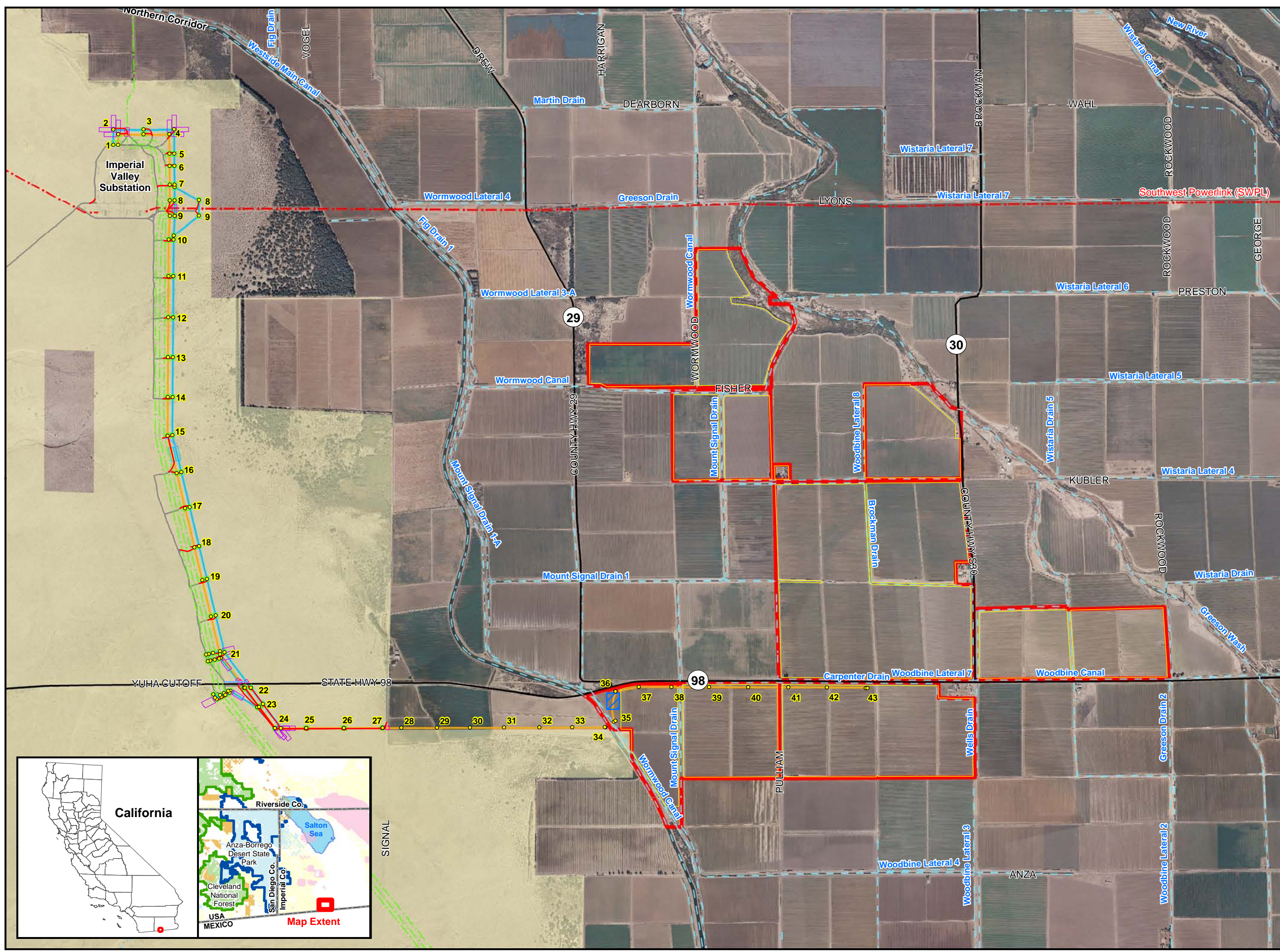
Legend

- Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



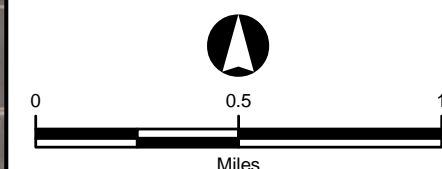
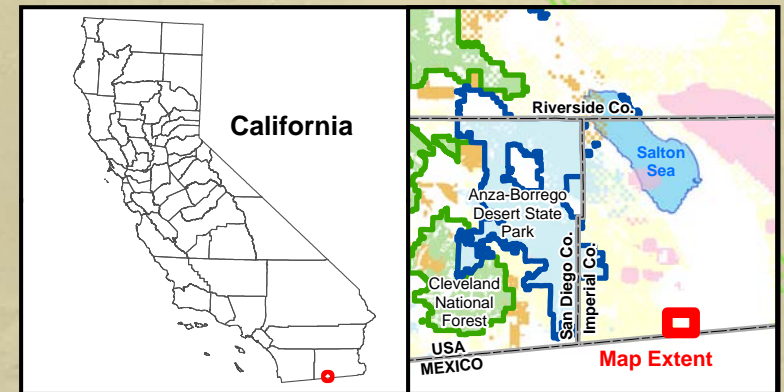
State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

**Figure 2
Proposed Action
and Alternatives**



Legend

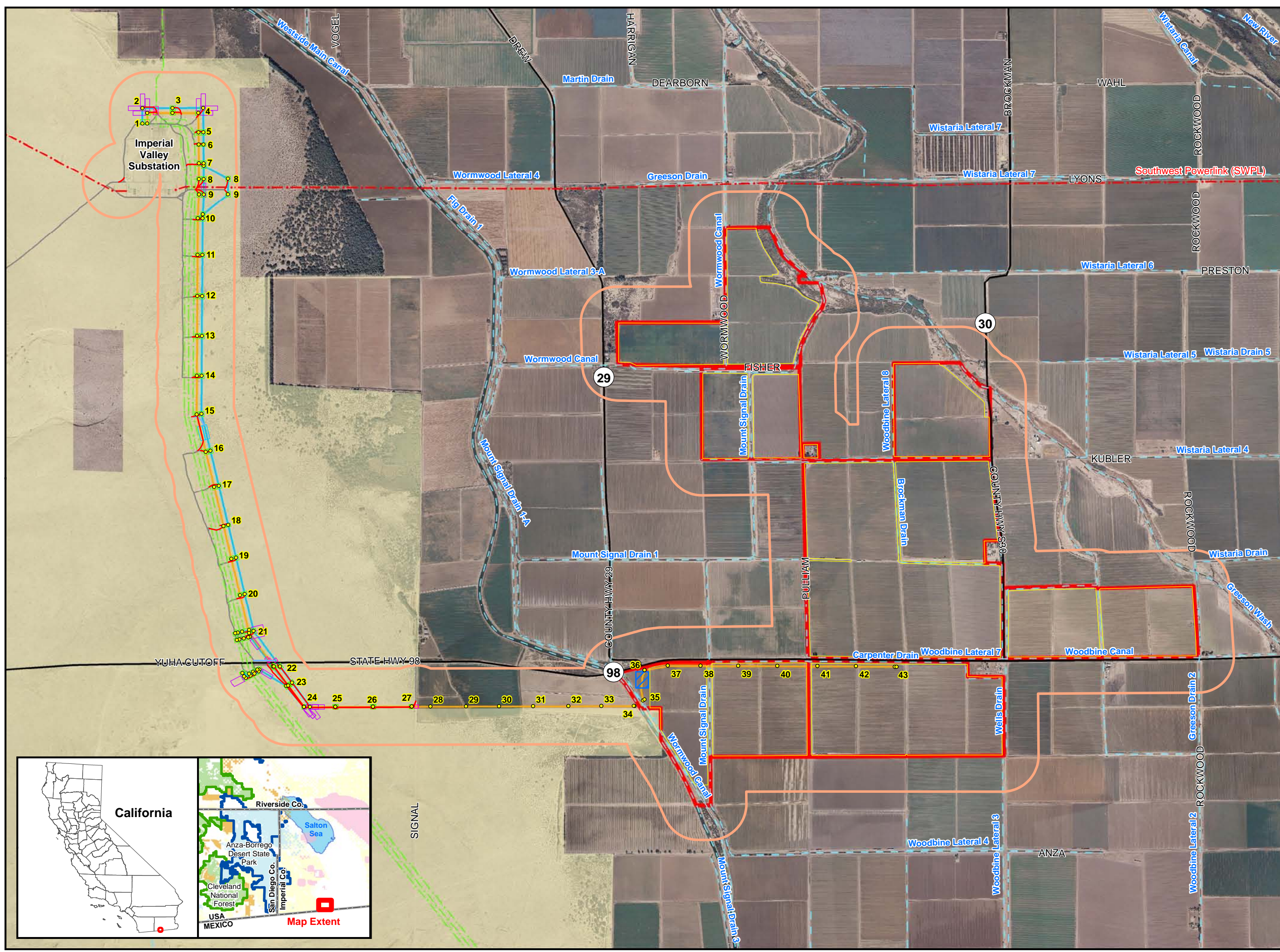
- Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

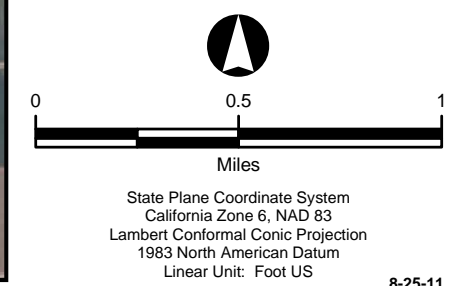
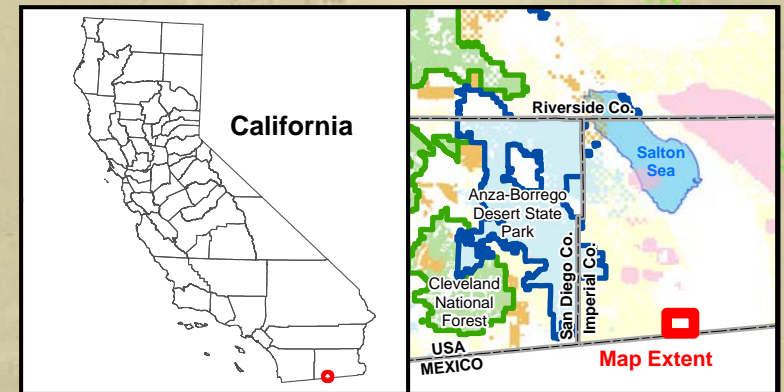
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Figure 3 Study Area

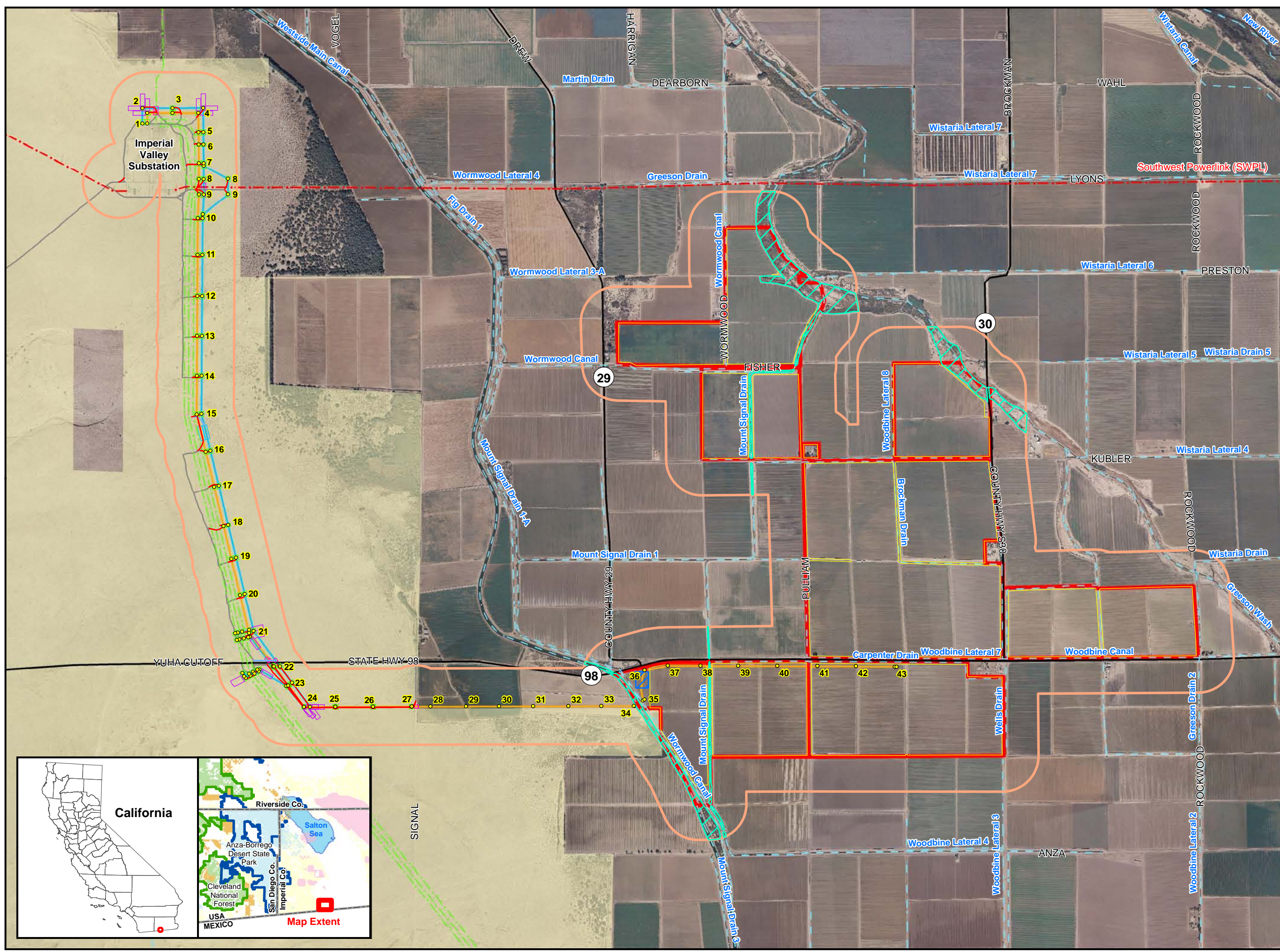


Legend

- Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



**Figure 4
Potential SWFL
Migratory Habitat**



Legend

- Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - Potential SWFL Migratory Habitat
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land

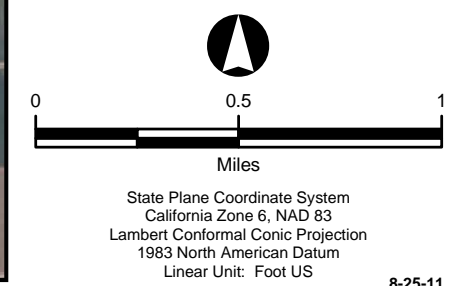
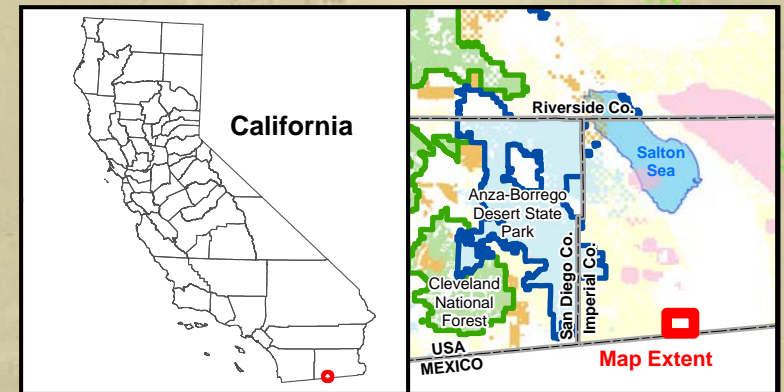
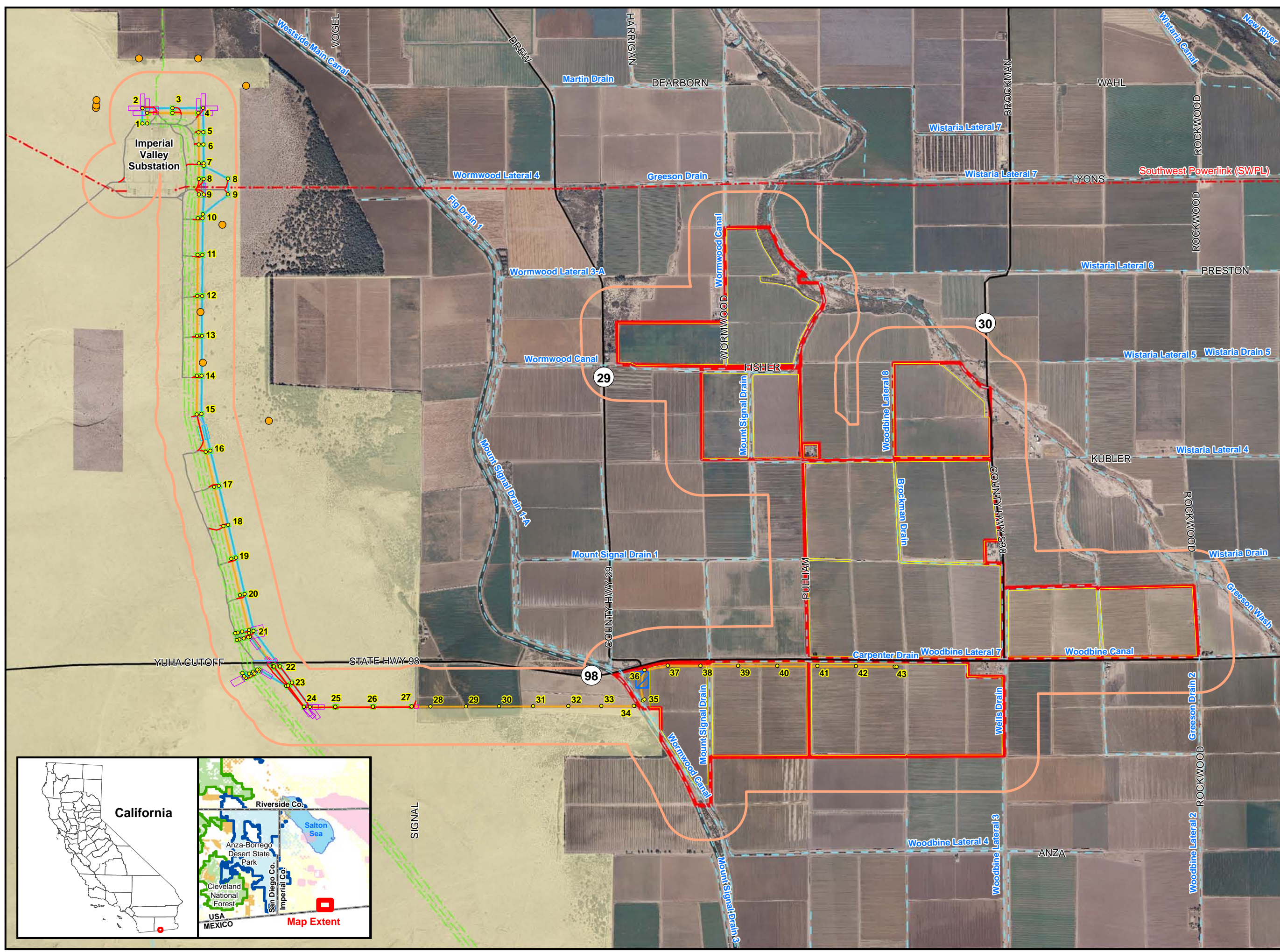
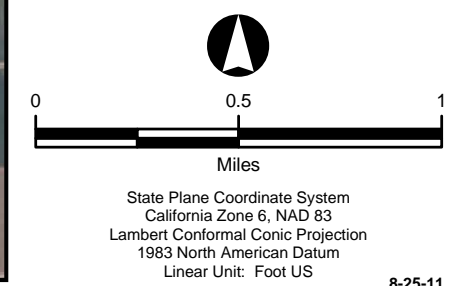
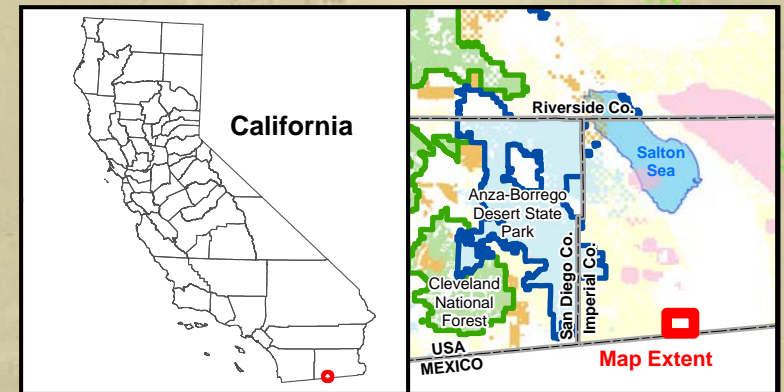


Figure 5
Flat-tailed Horned Lizard Occurrences



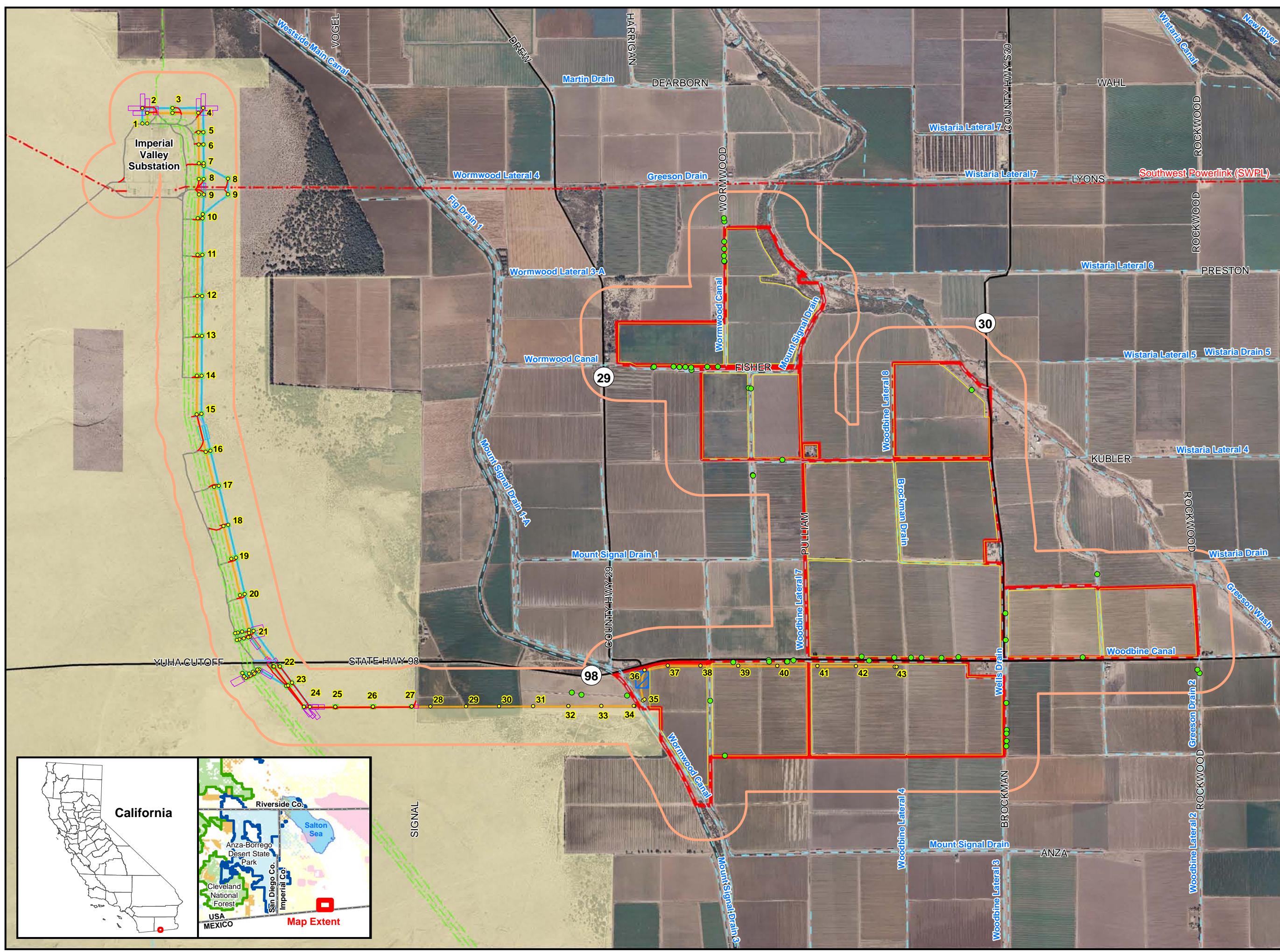
Legend

- Flat-tailed Horned Lizard Occurrence
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



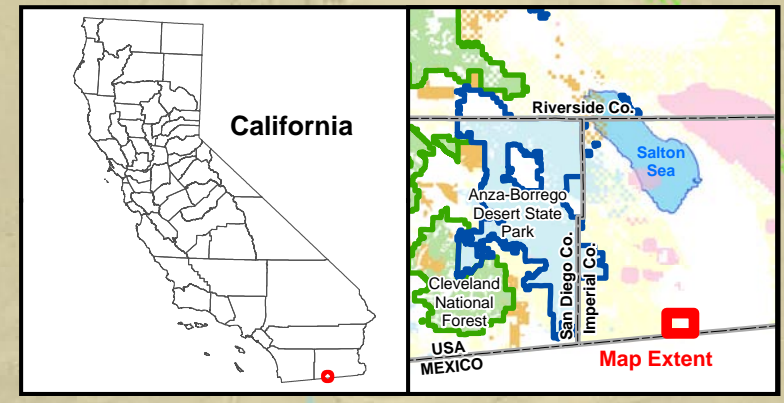
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Figure 6 Burrowing Owl Occurrences



Legend

- Active Burrow within CSE Study Area
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



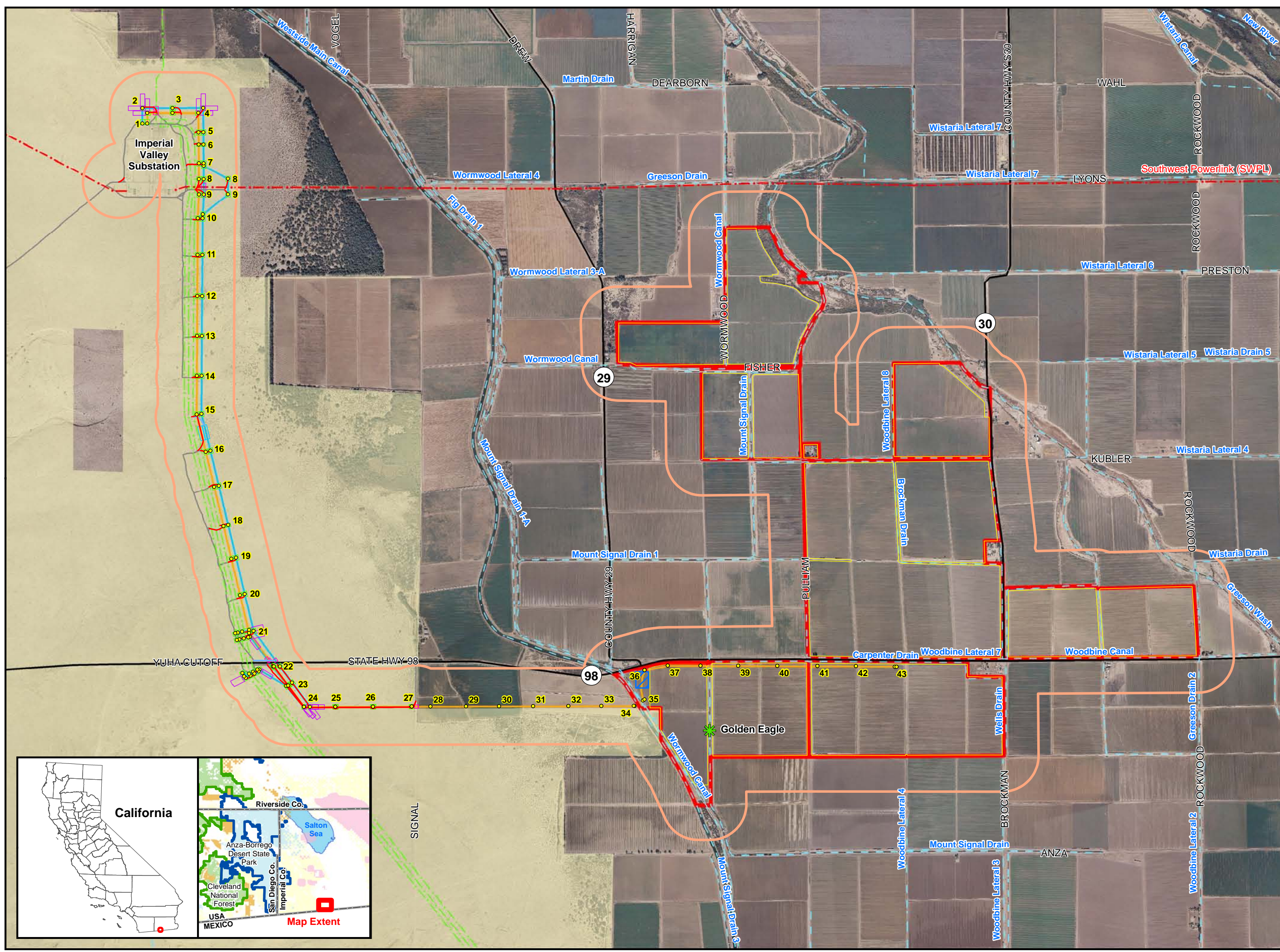
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Miles

State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

8-25-11

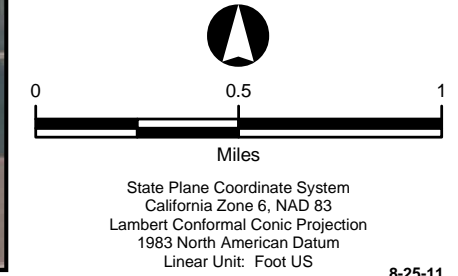
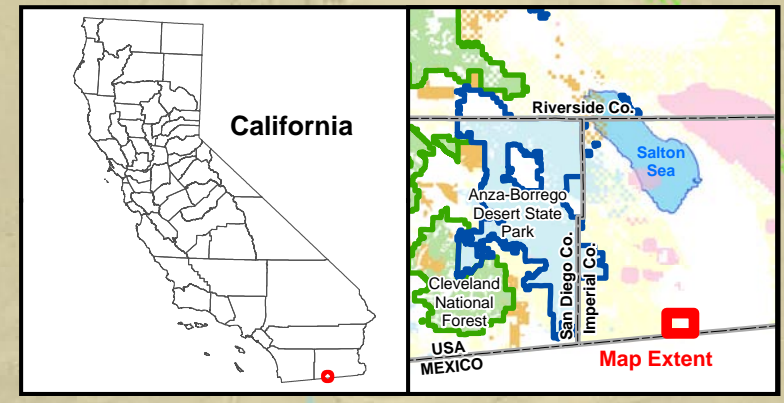
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Figure 7 Golden Eagle Occurrence



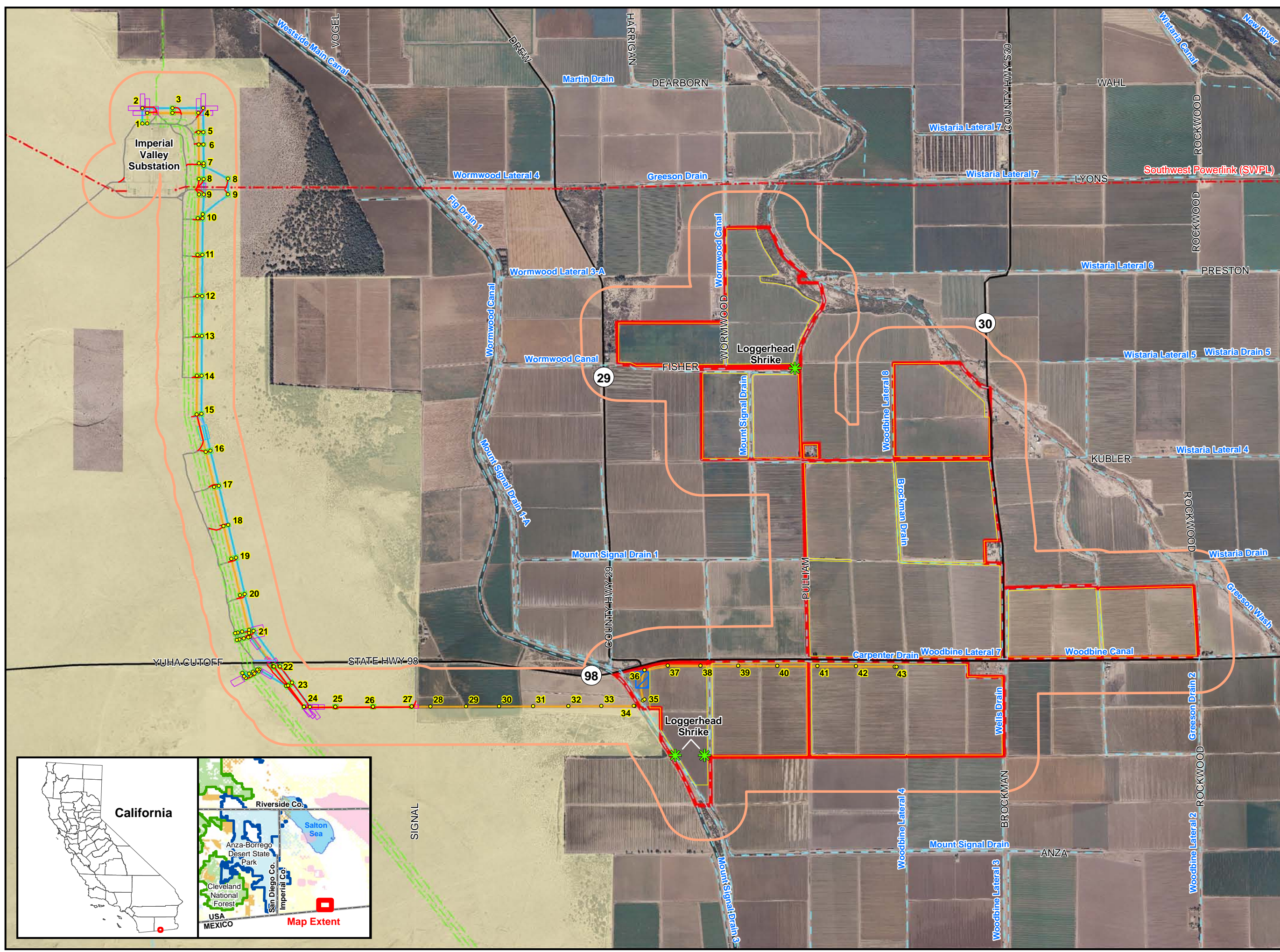
Legend

- Golden Eagle Occurrence
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



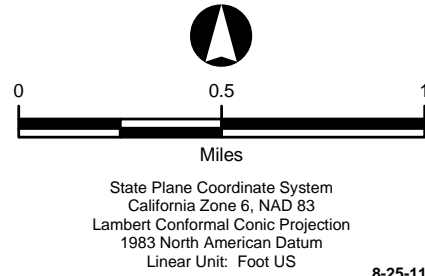
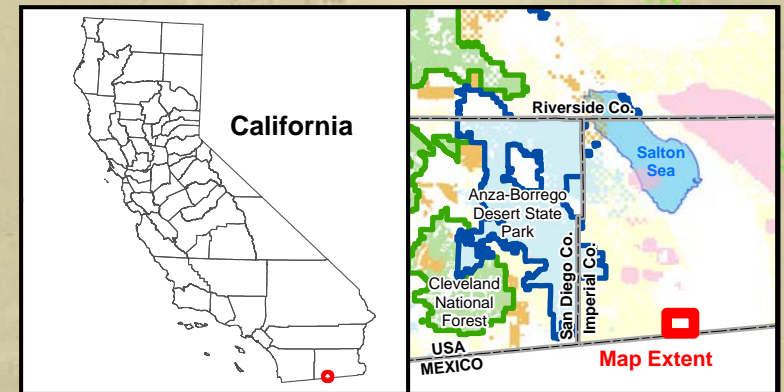
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Figure 8 Loggerhead Shrike Occurrences

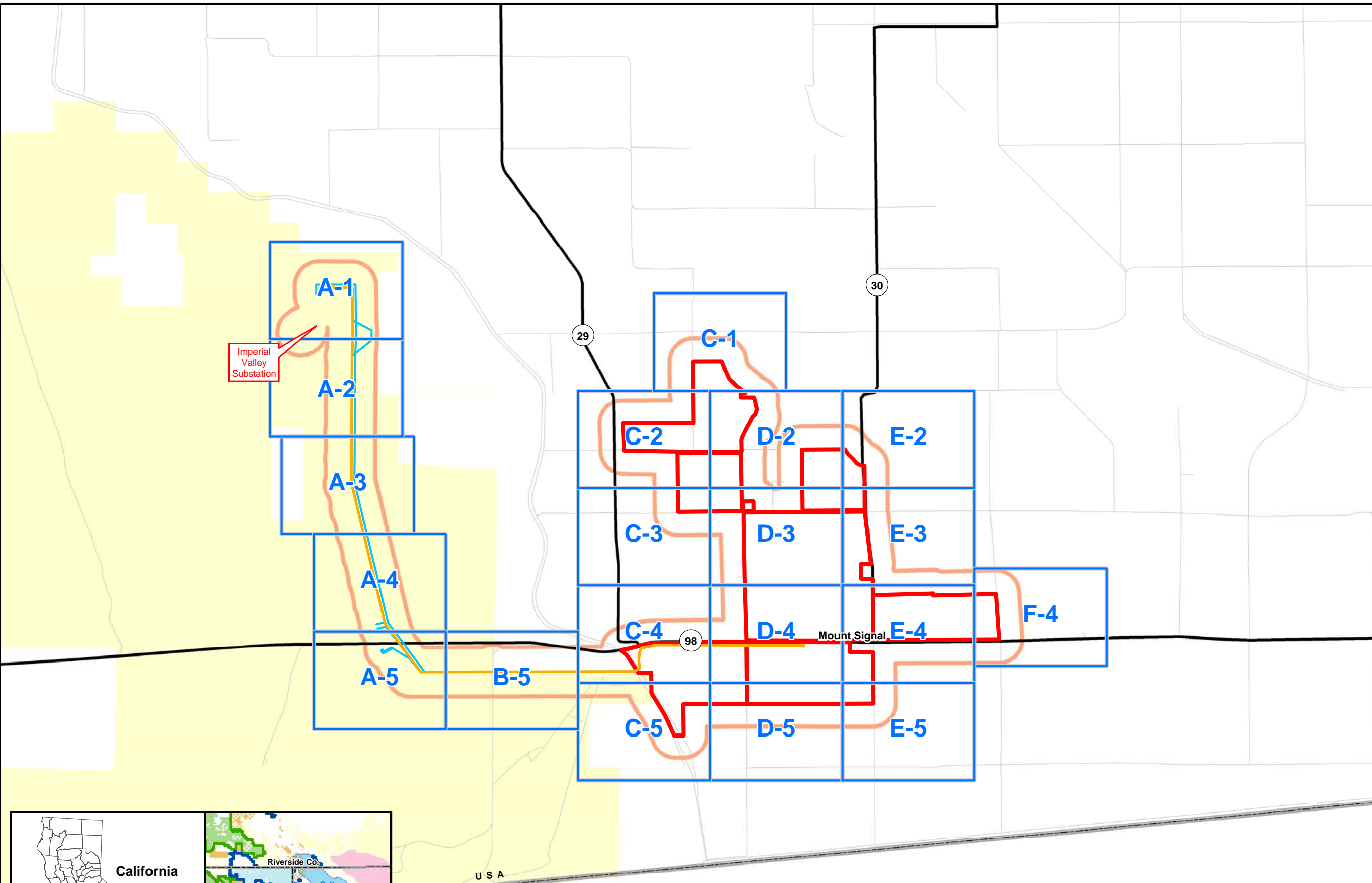


















Legend

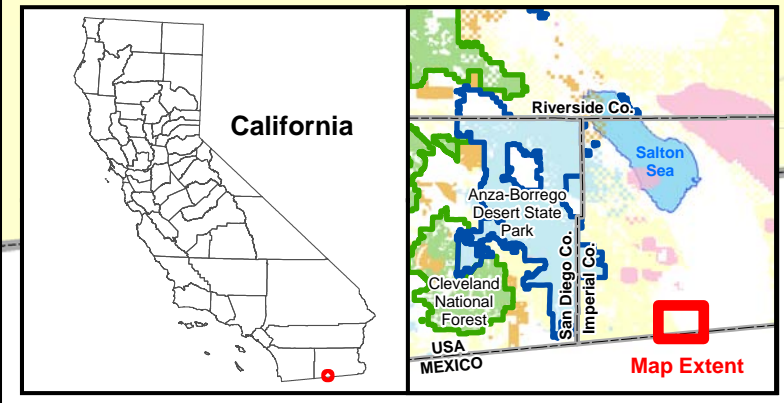
- Loggerhead Shrike Occurrence
 - Structure
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
 - Wire Splicing Site
 - Guard Structure
 - Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
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 - Department of Defense Land
 - State Land
 - Indian Land



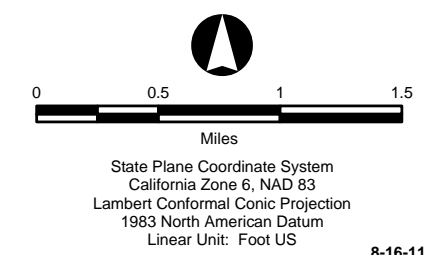
MAP SHEET INDEX



-  Gen-tie Line Route
-  Alternative Gen-tie Line Route
-  Major Road
-  Road
-  International Boundary
-  Map Sheet Boundary
-  CSE Facility
-  CSE Action Area
-  Major Water Body
-  Cleveland National Forest Congressional Boundary
-  State Park Boundary
- Jurisdictional Land Ownership**
-  Bureau of Land Management Land
-  U.S. Forest Service Land
-  Department of Defense Land
-  State Land
-  Indian Land



Centinela Vegetation Mapbook


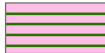

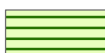

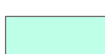

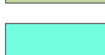
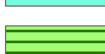


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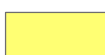
Vegetation Legend

Vegetation Communities



Desert Scrub

-  Big Salt Bush - Bush Seepweed Scrub (SBSS)
-  Big Salt Bush Scrub - Disturbed (BSS-D)
-  Creosote Bush – White Bursage Scrub (CBS)
-  Creosote Bush – White Bursage Scrub - Disturbed (CBS-D)
-  Creosote Bush – White Bursage Scrub / Alkali Depressions (CBS/AD)
-  Desert Pavement (DP)
-  Goldenbush scrub (GS)
-  Mesquite - Catclaw Scrub (MCCS)
-  White Bursage Scrub - Disturbed (WBS-D)

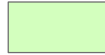

Desert Wash Scrub

-  Encelia – White Bursage Wash Scrub (EWBS)
-  Ephedra – Encelia Wash Scrub (EEWS)
-  Mesquite Bosque (MB)
-  Smoke Tree Wash Scrub (STWS)


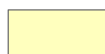
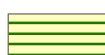

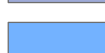
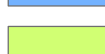

Native Woodland

-  Mesquite Woodland (some possibly planted) (MW)
-  Palo Verde Woodland (possibly planted) (PVW)

Non-Native Communities

-  Agriculture (AG)
-  Developed or Disturbed Habitat (Dev or DH)





















Riparian and Wetland

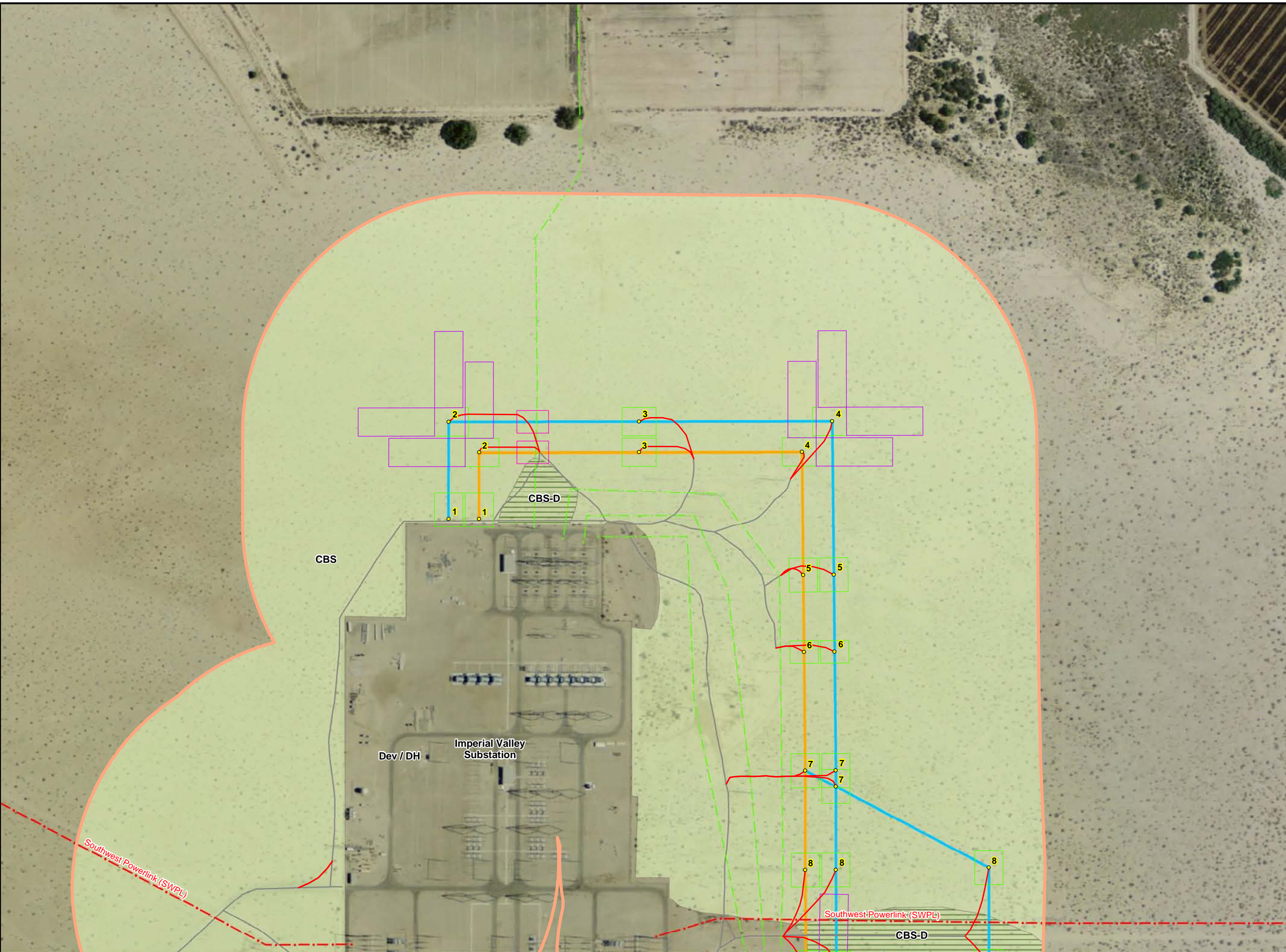
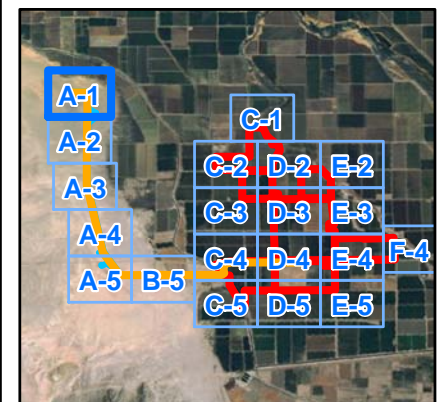
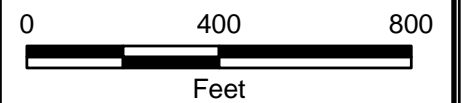
-  Arrow Weed Scrub (AS)
-  Arrow Weed Scrub - Disturbed (AS-D)
-  Arrow Weed Scrub / Tamarisk Scrub (AS/TS)
-  Arrow Weed Scrub / Tamarisk Scrub - Disturbed (AS/TS-D)
-  Disturbed Wetland (DW)
-  Non-Vegetated Sandy Wash (NVSW)
-  Open Water (OW)
-  Tamarisk Scrub (TS)
-  Tamarisk Scrub - Disturbed (TS-D)

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Vegetation

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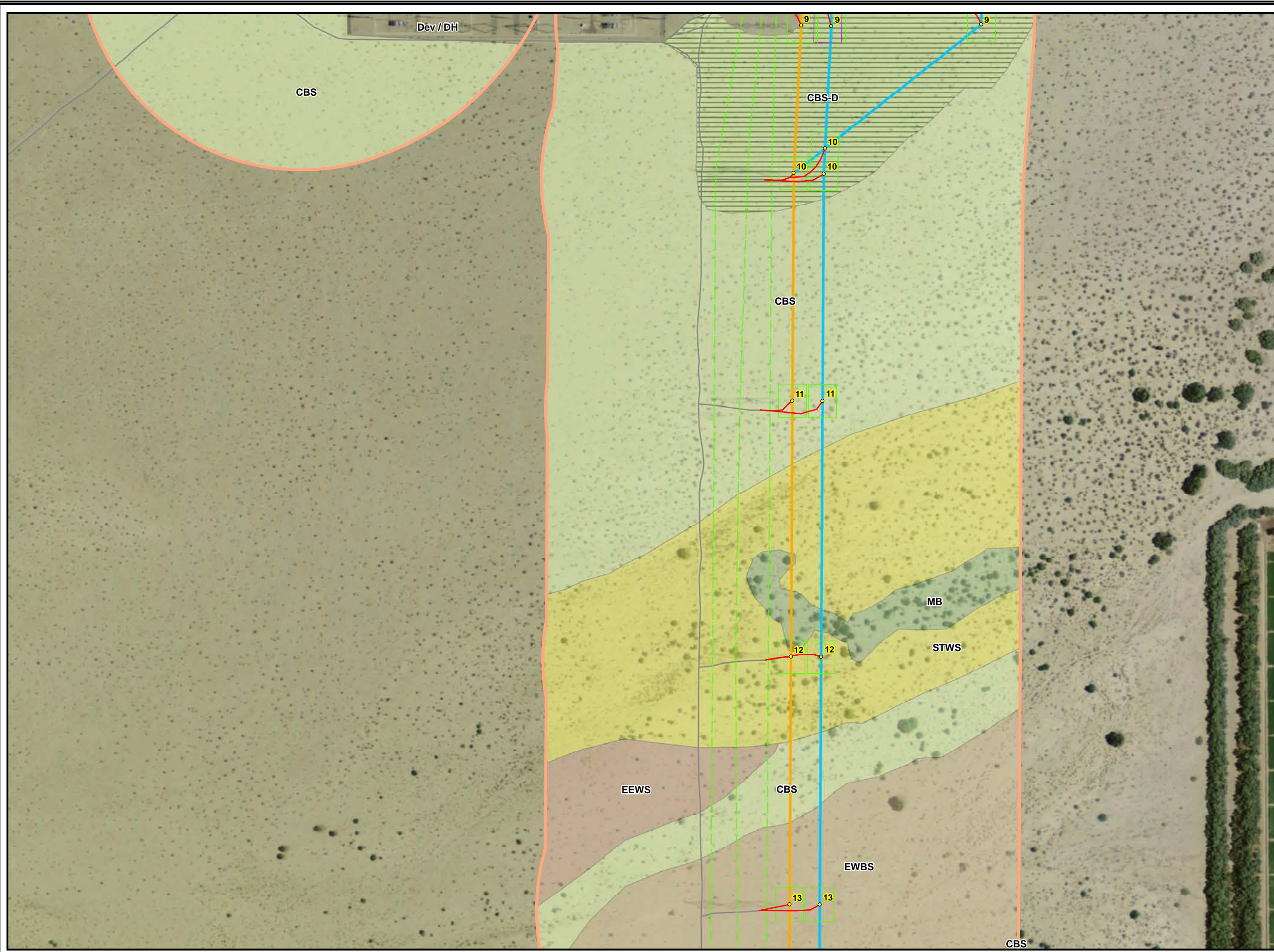
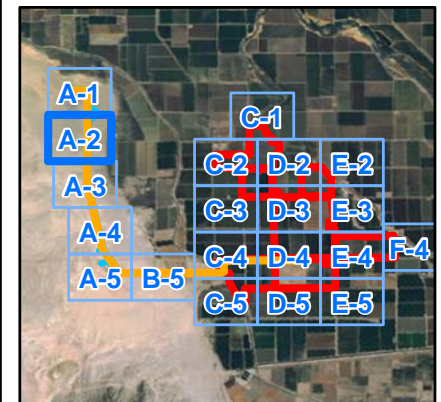
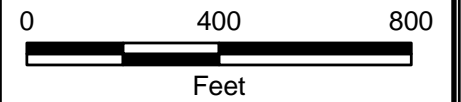


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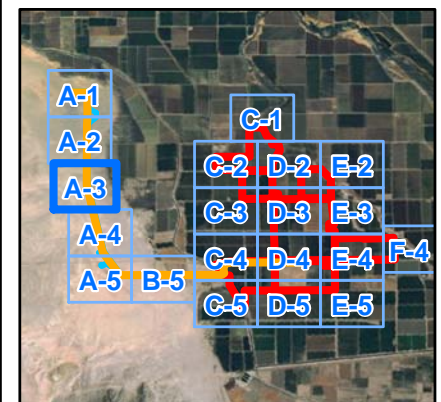
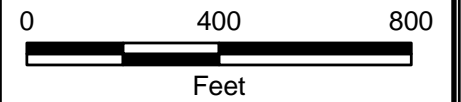


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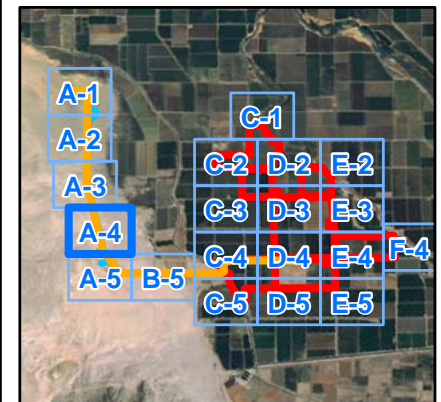
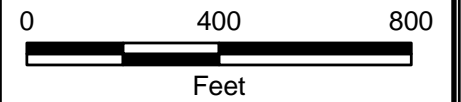


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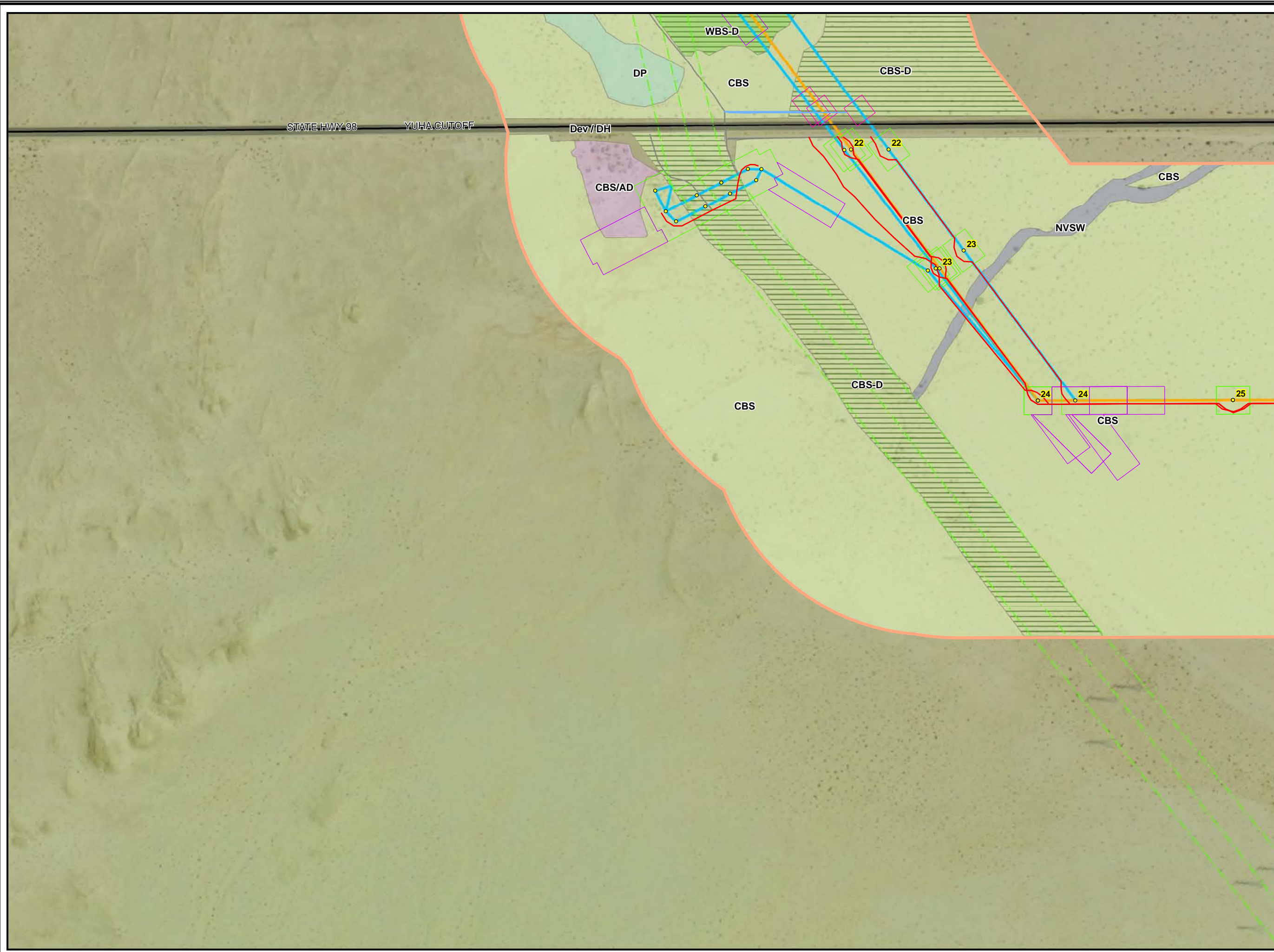
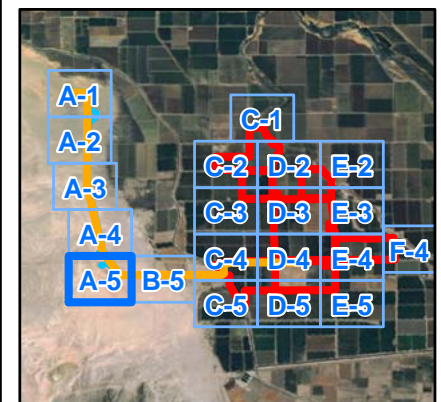
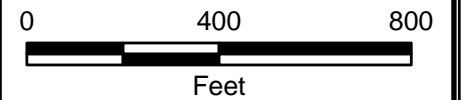


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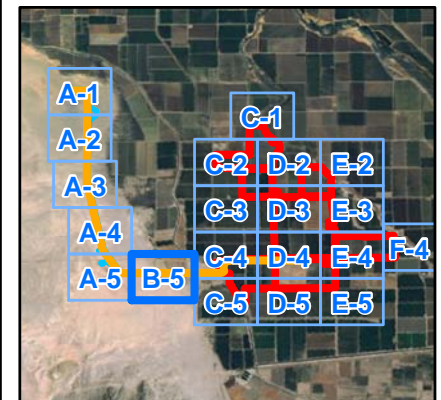
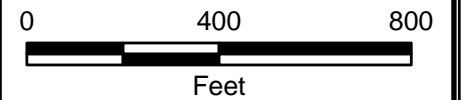


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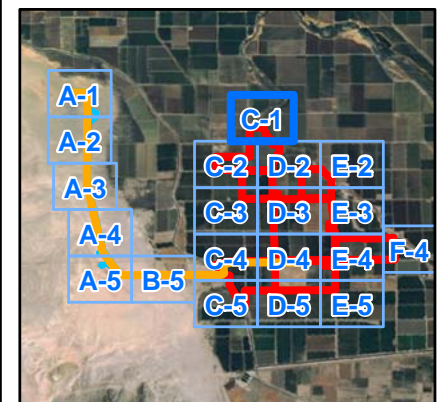
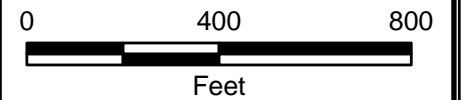


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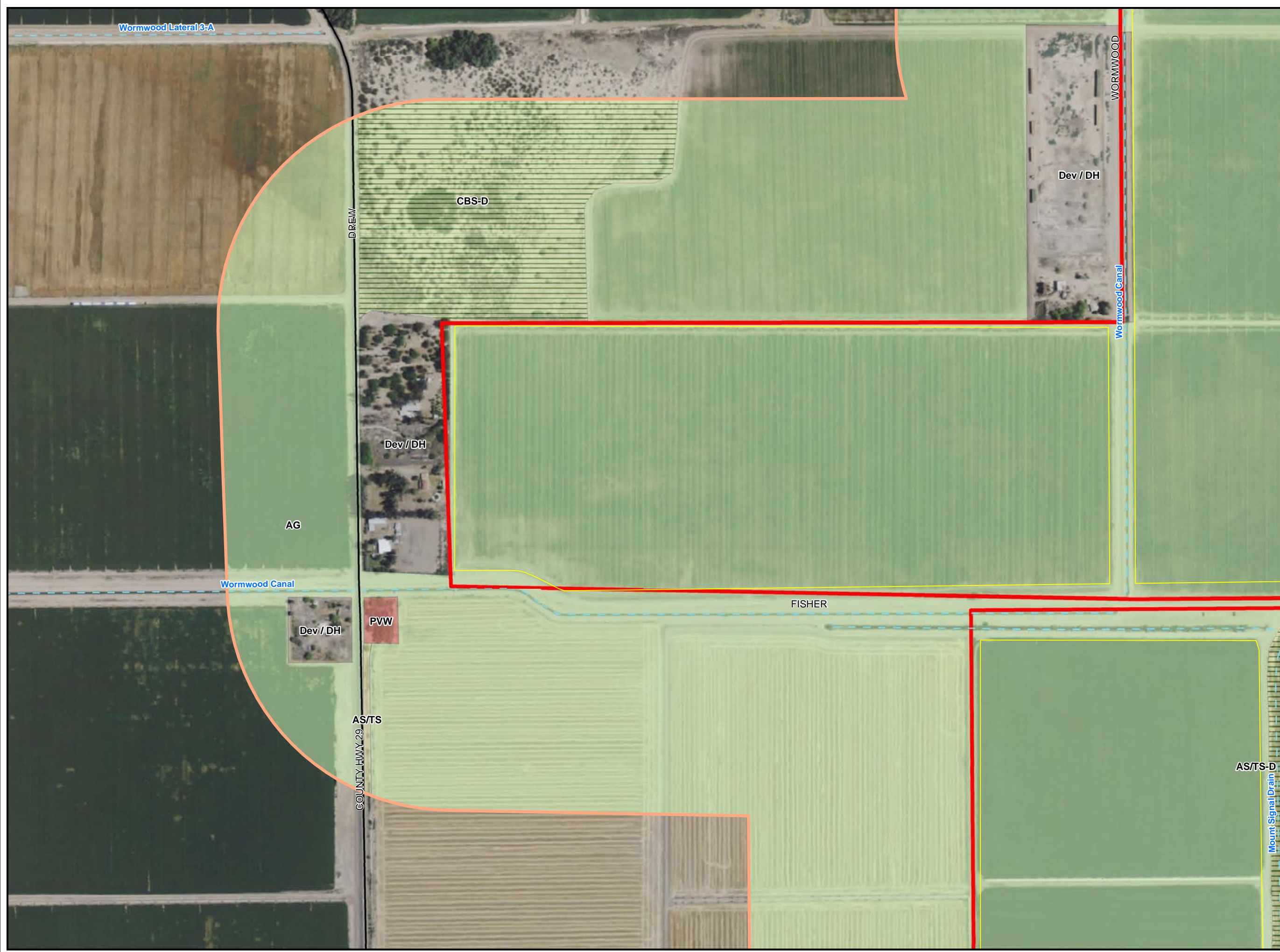
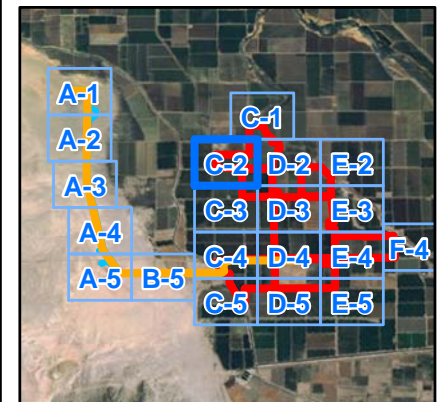
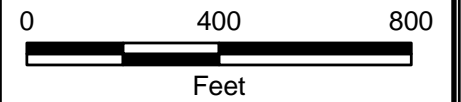


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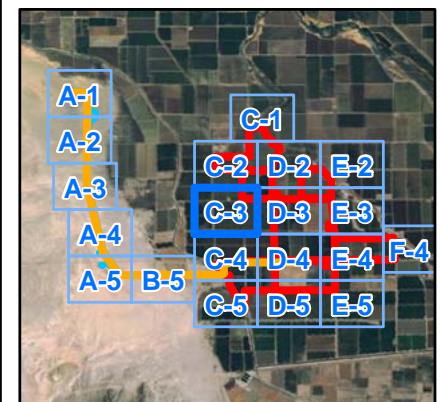
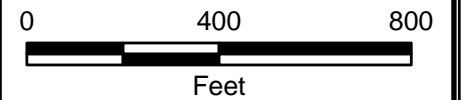


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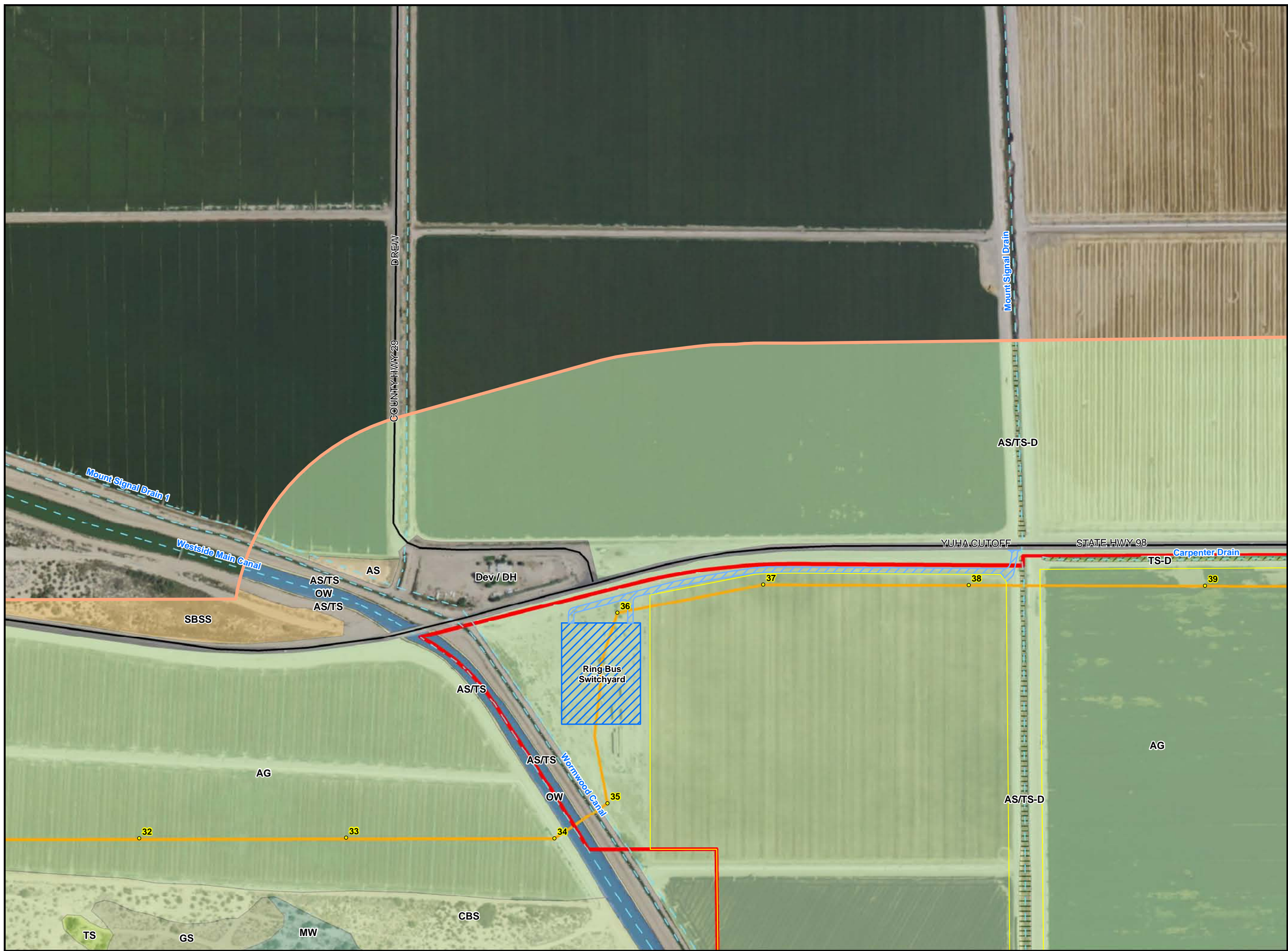
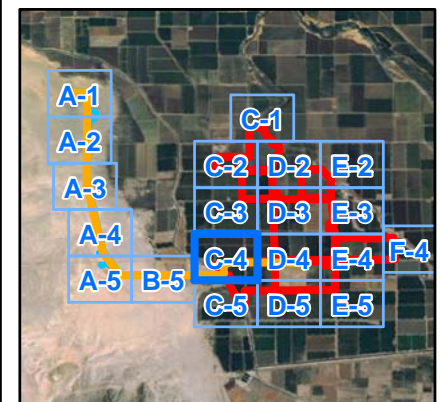
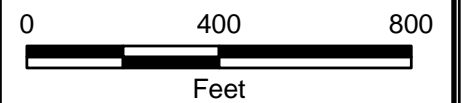


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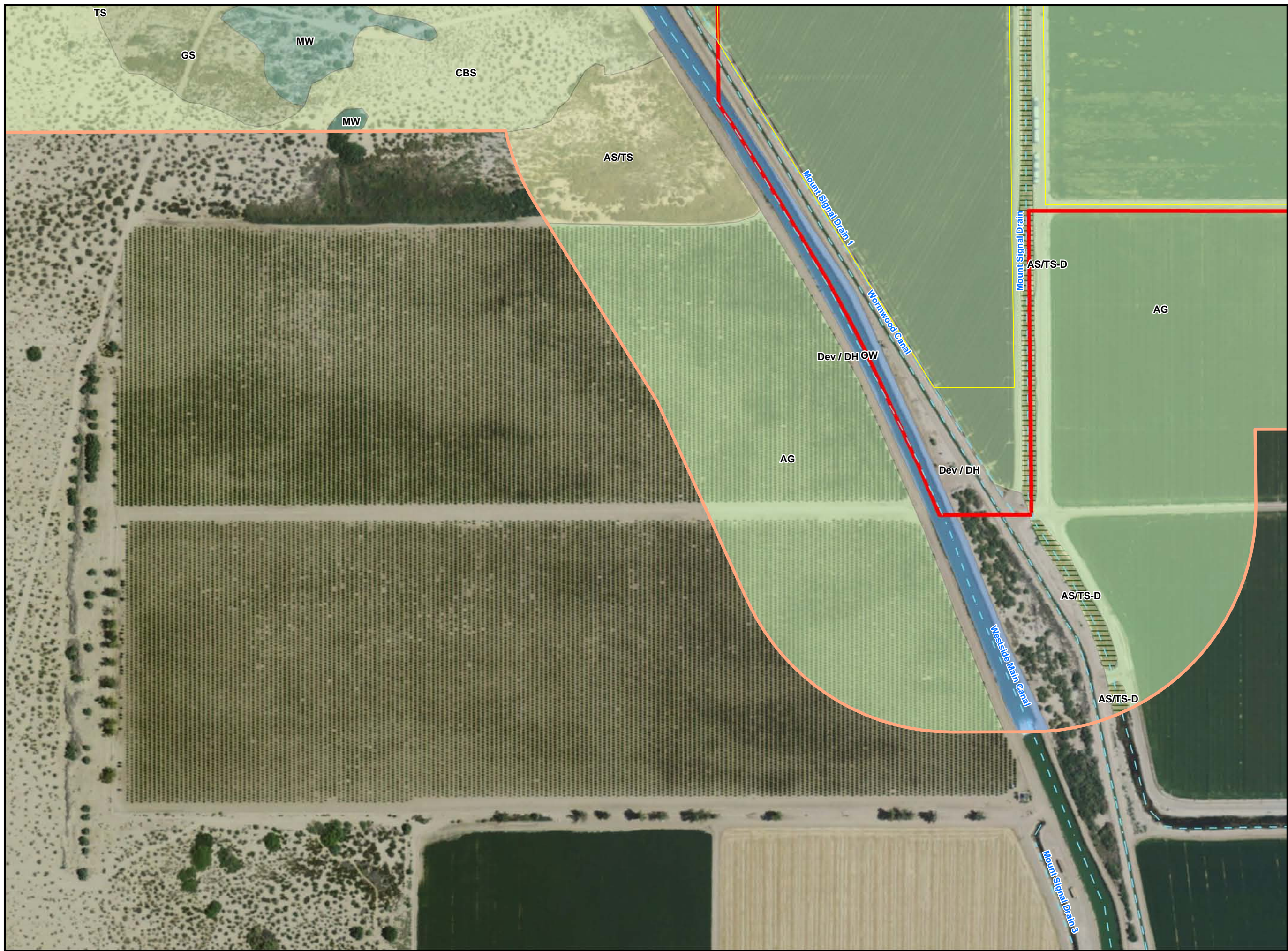
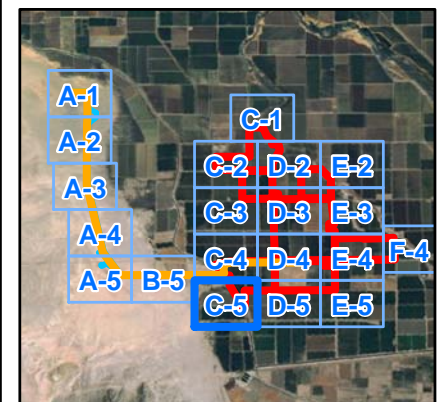
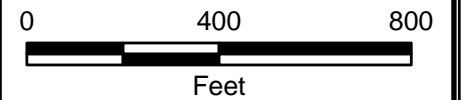


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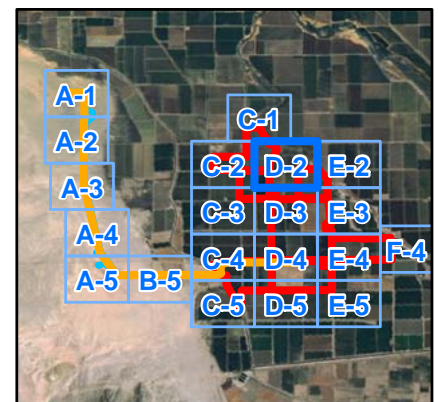
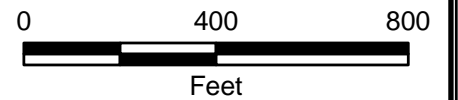


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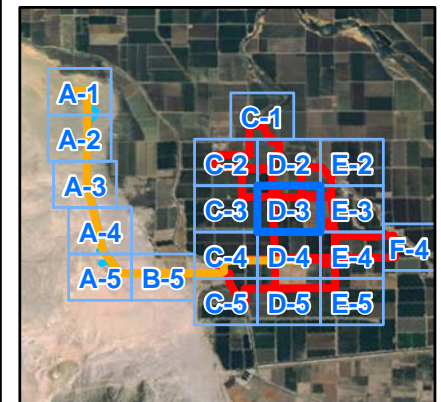
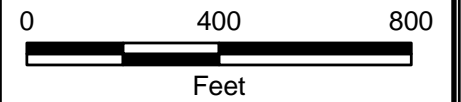


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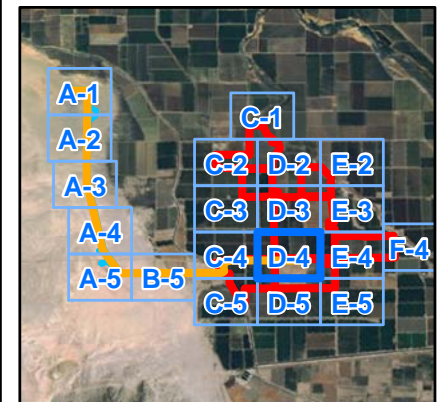
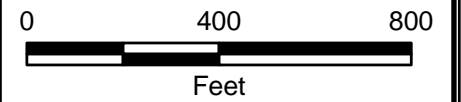


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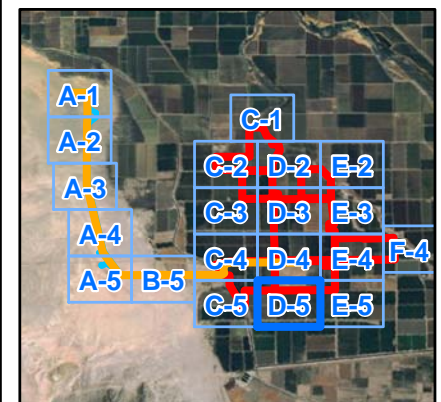
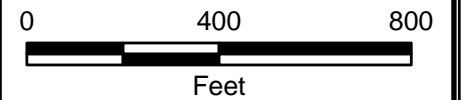


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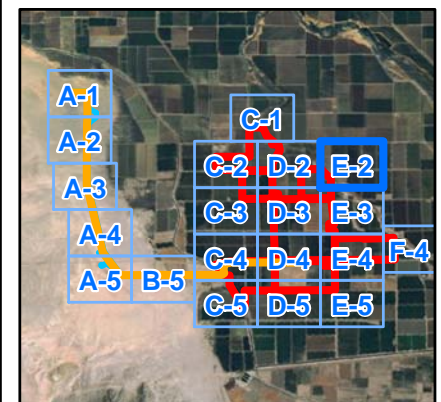
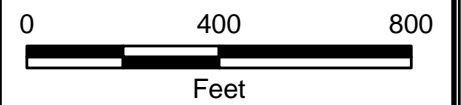


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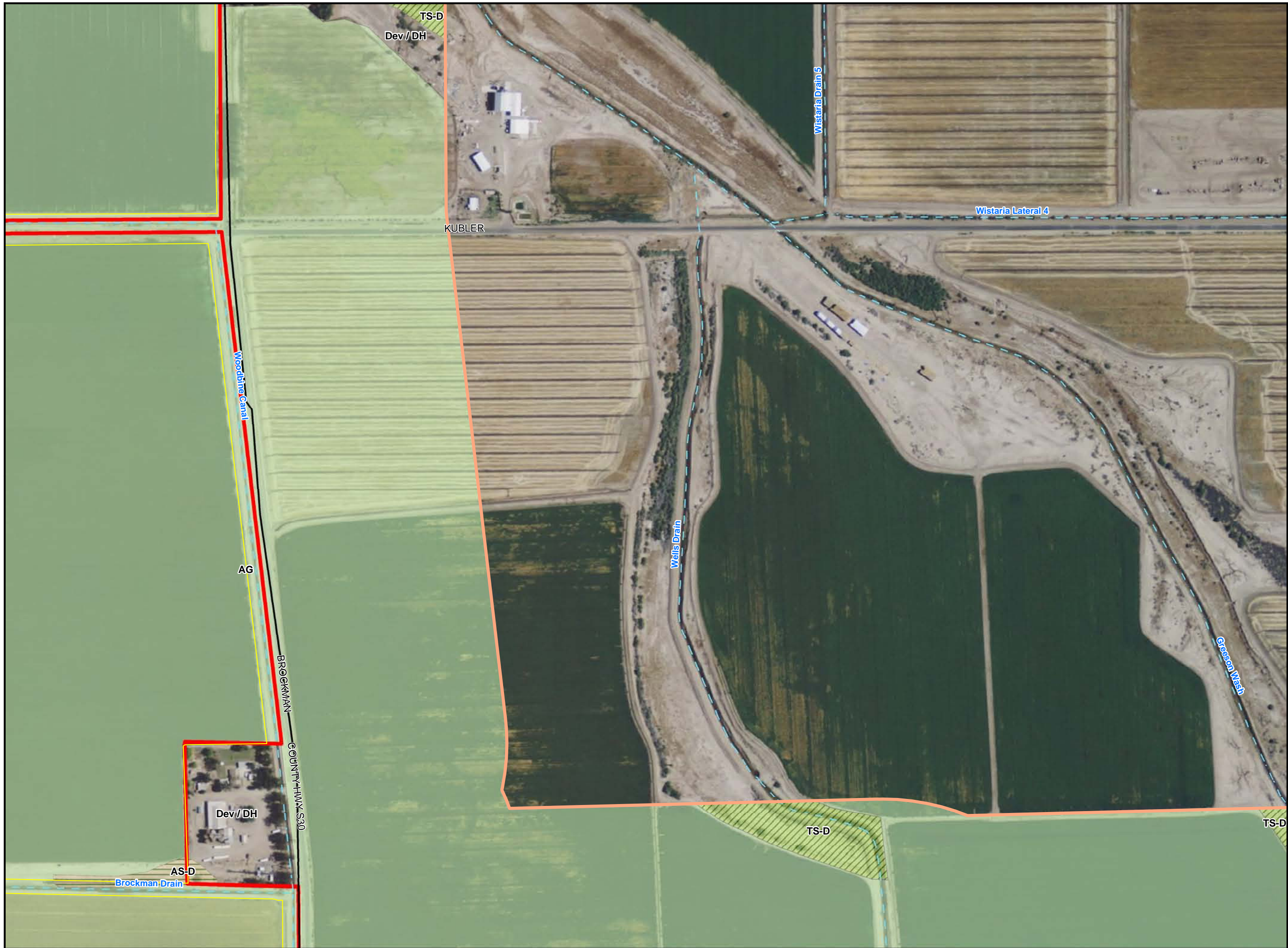
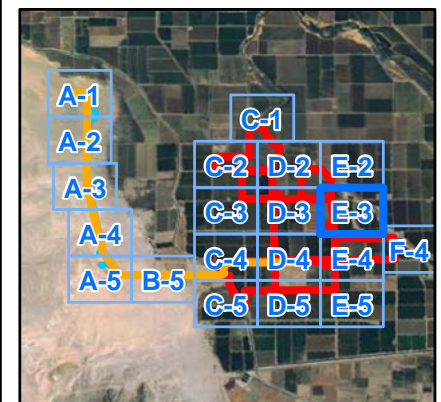
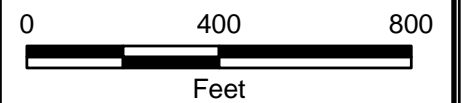


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-  Guard Structure
-  Ring Bus Switchyard (Option for Alternatives 5 & 6 only)
-  Access Road (Option for Alternatives 5 & 6 only)

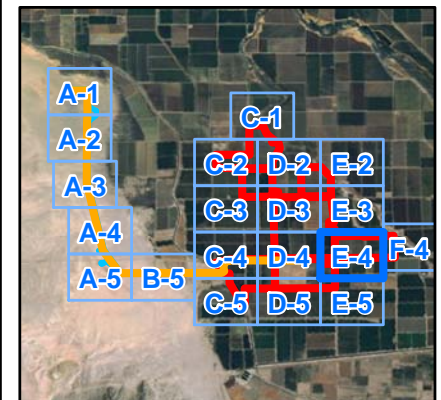
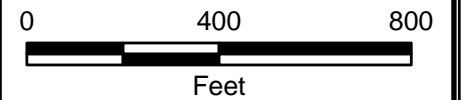


Centinela

Vegetation

Legend





















-  Gen-tie Structure
-  Existing 500 kV Transmission Line
-  Existing 230 kV Transmission Line
-  Gen-tie Line Route
-  Alternative Gen-tie Line Route
-  Major Road
-  Existing Access Road
-  New Access Road
-  Temporary Access Road
-  Stream, Major Canal and/or Irrigation Canal
-  County Boundary
-  CSE Action Area
-  CSE Facility
-  CSE Facility Disturbance Area
-  Temporary Work Area
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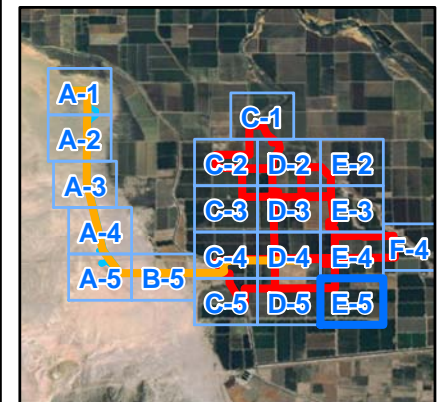
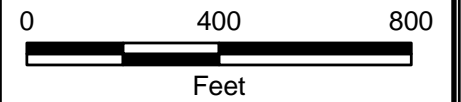


Centinela

Vegetation

Legend





















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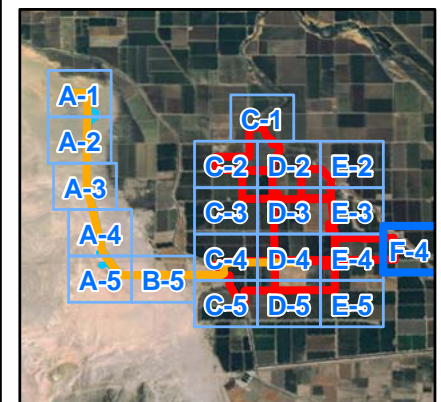
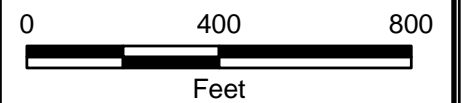


Centinela

Vegetation

Legend

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Burrowing Owl Mitigation and Monitoring Plan

FINAL

Centinela Solar Energy Project

Prepared for:

California Department of Fish and Game

Prepared by:

Heritage Environmental Consultants
2870 Emporia Court
Denver, Colorado 80238



February 2012

(Revised October 2012)

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1.0 Introduction

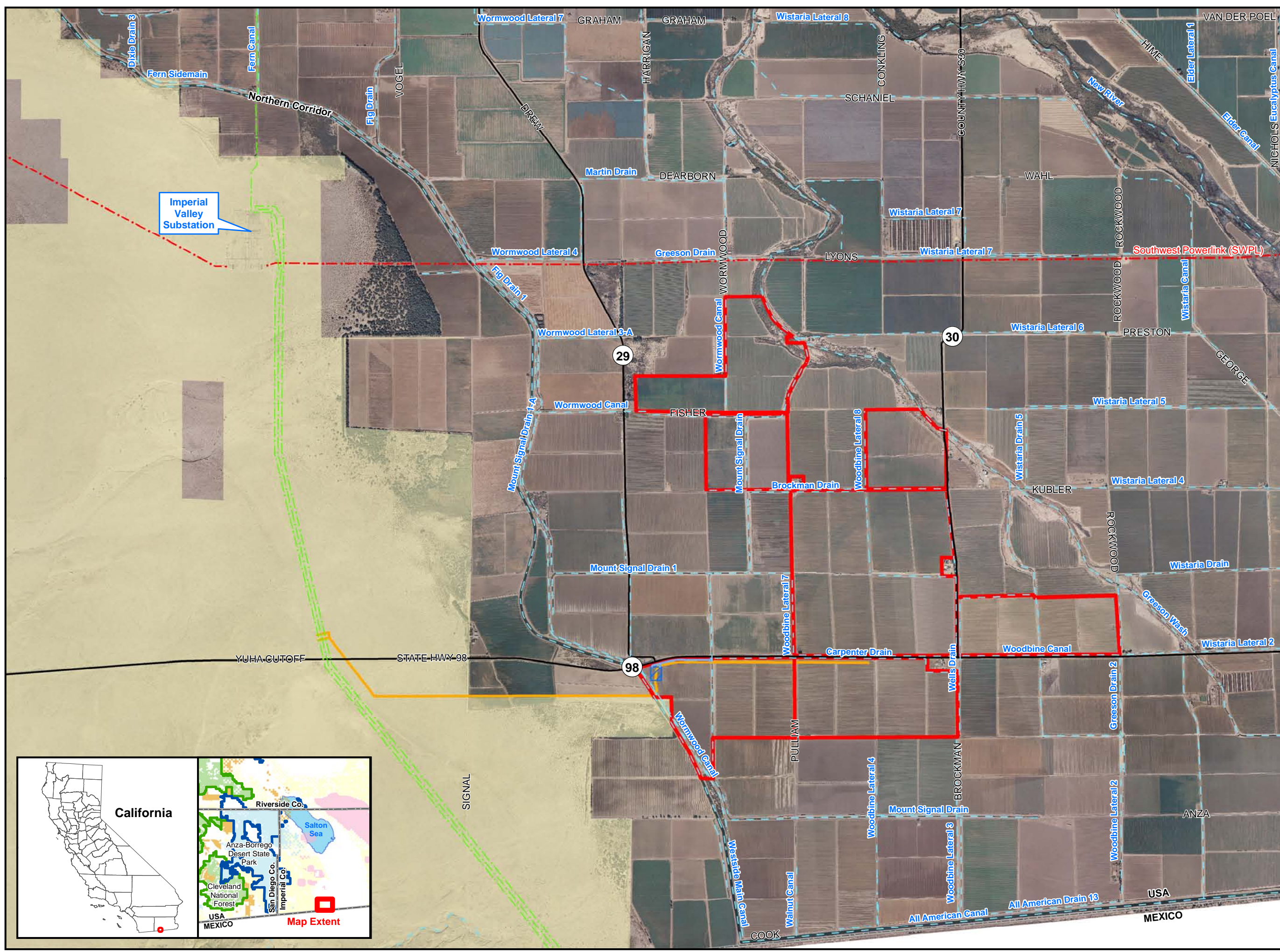
Centinela Solar Energy, LLC (CSE) is proposing to build, operate and maintain a solar electric power generating facility and associated electrical line on private and federal lands in southern Imperial County. The proposed project consists of two primary components: (i) generation and associated facilities on privately owned land (the “CSE Facility”) and (ii) an approximately four-mile, 230-kilovolt (kV) aboveground, electrical line and associated facilities (the “Gen-tie Line”) that will electrically connect the CSE Facility on private land with the Imperial Valley Substation (or “IV Substation”) located on federal land managed by the U.S. Department of the Interior, Bureau of Land Management (BLM). The CSE Facility and Gen-tie Line are referred to collectively as the “Project.” The area encompassing the CSE Facility and the Gen-tie Line is referred to as the “CSE Project Area.” CSE plans to begin construction on the Project during the second quarter of 2012. The general location of the Project is the Mount Signal area of Imperial County, approximately 8 miles southwest of the city of El Centro, Imperial County, California (**Figure 1**).

A total of 1,861 acres of active agricultural lands are expected to be permanently impacted as a result of project implementation. Construction of the Gen-tie Line would result in approximately 2.6 acres of permanent disturbance on native desert lands managed by the BLM. The agricultural fields and their associated irrigation infrastructure provide suitable habitat for Burrowing Owls (*Athene cunicularia*). Based on field studies conducted by Heritage Environmental Consultants, LLC (Heritage) between 2009 and 2011, the project has the potential to affect foraging habitat associated with up to 41 active Burrowing Owl burrows (**Figure 2**). No active burrows were identified within the Gen-tie Line right-of-way (ROW) on BLM-managed lands. It is anticipated that no active burrows will be removed by the Project. Burrowing Owls are designated a Species of Special Concern by the California Department of Fish and Game (CDFG) and are protected under California Fish and Game Code Sections 3503 and 3513 as well as the federal Migratory Bird Treaty Act (16 United States Code 703 et seq.).

CSE has developed this mitigation and monitoring plan to identify the reasonably foreseeable threats to the owls present in and immediately around the project area and develop measures to avoid, minimize, or mitigate these potential impacts.

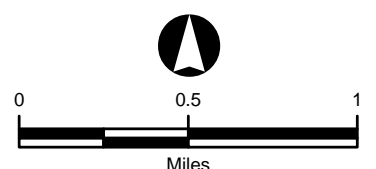
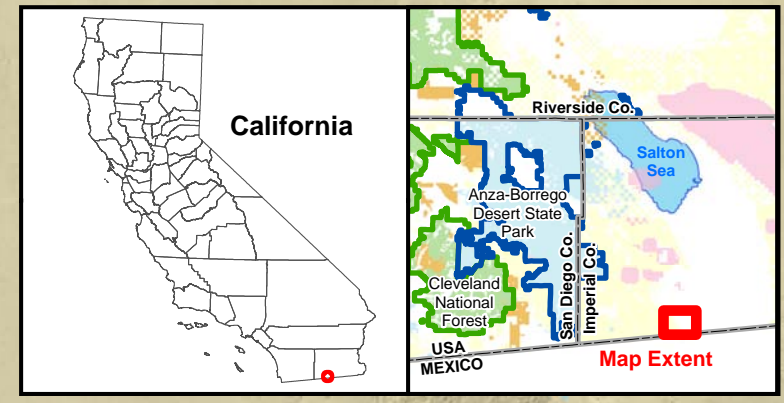
Centinela Solar Energy, LLC

Figure 1 Project Location



Legend

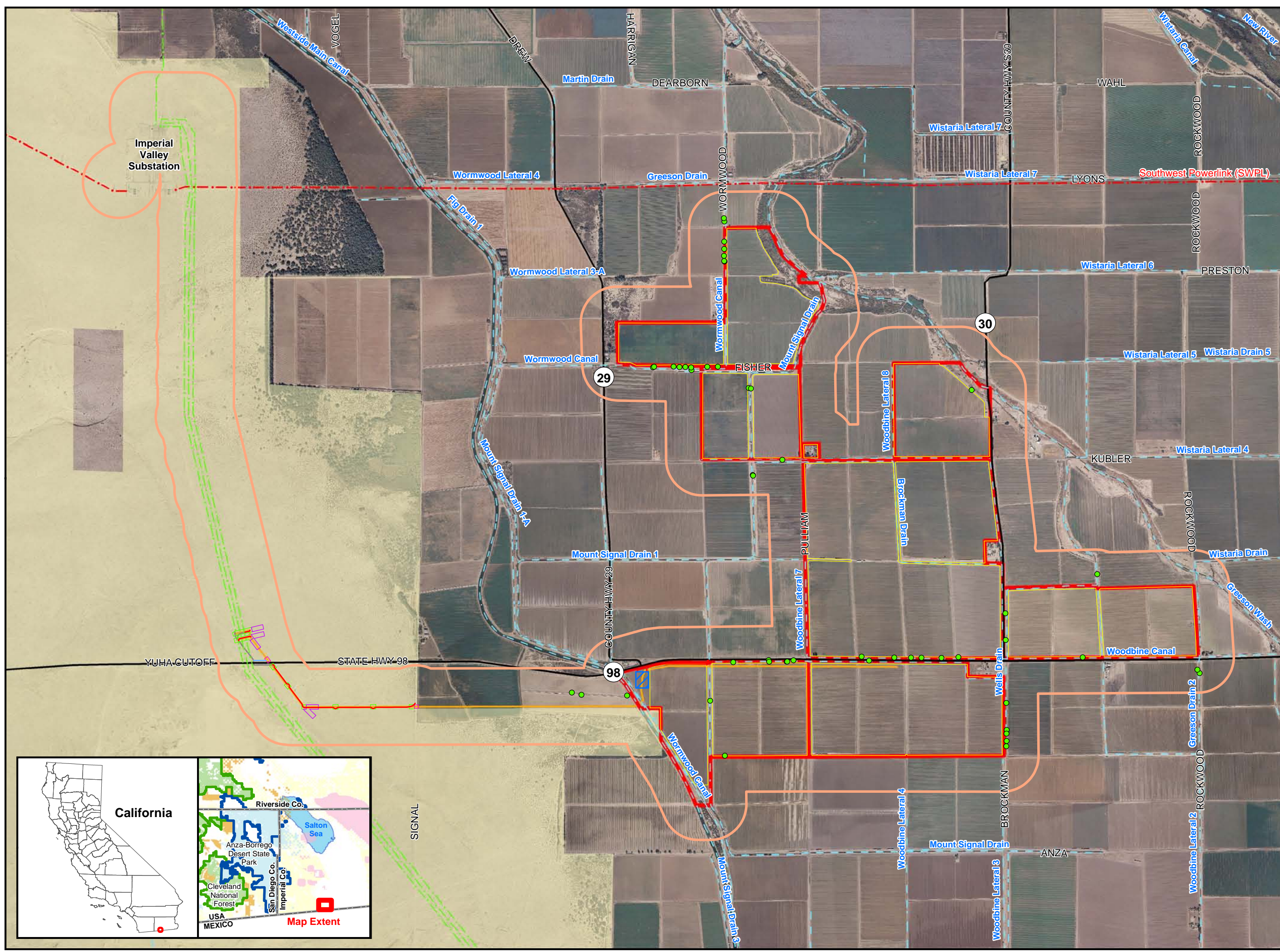
- Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Alternative 3 Gen-tie Line Route
 - Major Road
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 - County Boundary
 - Ring Bus Switchyard
 - CSE Facility Parcel
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

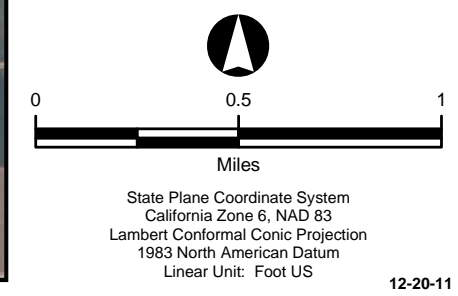
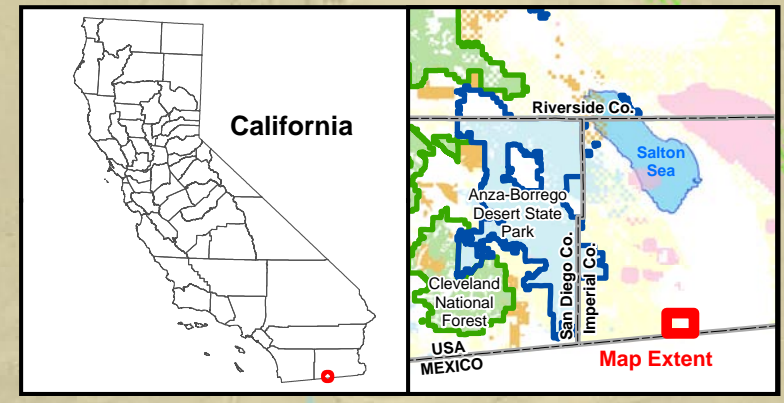
Centinela Solar Energy, LLC

Figure 2 Burrowing Owl Occurrences



Legend

- Active Burrow within CSE Study Area
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Alternate 3 Gen-tie Line Route
 - Major Road
 - Existing Access Road
 - New Access Road
 - Temporary Access Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - CSE Study Area
 - CSE Facility Parcel
 - CSE Facility Disturbance Area
 - Temporary Work Area
 - Pulling & Tensioning Area
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- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



2.0 Status of Burrowing owls in the Project Area

Heritage conducted protocol Burrowing Owl surveys in accordance with the 1993 California Burrowing Owl Consortium's (CBOC) *Burrowing Owl Survey Protocol and Mitigation Guidelines* ([CBOC Guidelines] CBOC 1993) and the *CDFG Staff Report on Burrowing Owl Mitigation* (CDFG 1995). Surveys were completed during the 2009 and 2011 breeding seasons as well as the 2009/2010 winter season.

Surveys were conducted within the project area and a 500-foot buffer surrounding the project area. The Phase I habitat assessments determined that most of the study area contains suitable Burrowing Owl habitat. These areas were subsequently evaluated using the Phase II and III survey techniques. Survey dates, times, weather conditions, and results are provided in the attached Heritage survey report (Heritage 2011; **Attachment 1**).

Forty-eight active Burrowing Owl burrows were detected within the study area during the surveys (**Figure 2**). All burrows were observed or assumed to be attended by a pair (2) of Burrowing Owls. Cooperative breeding has not been observed in the species (Haug et al. 1993) and no more than 2 adults were ever suspected to be associated with any burrow in the study area. In several instances, only one adult was ever observed at a given burrow. However, without a mark-recapture or color banding study, it is not possible to confirm that these represent instances of an unpaired adult. Therefore, for the purposes of this plan, all adult owls within the project area are assumed to be paired, and the term "active burrow" should be interpreted to represent a "breeding pair" throughout this document. As such, the 48 active burrows represent up to 96 adult Burrowing Owls occupying the study area. **Attachment 2** provides the number of owls counted at each burrow on each survey day (including juvenile owls).

Winter surveys confirmed that Burrowing Owls continue to use the site during the non-breeding season, though in significantly lower densities (Heritage 2011; **Attachment 1**). It is unclear if these birds represent year-round residents or migratory individuals that winter in the project area but breed farther north.

3.0 Impact Avoidance, Mitigation and Compensation

3.1 Risk Assessment

The 1995 *CDFG Staff Report on Burrowing Owl Mitigation* defines an impact to burrowing owl as:

- Disturbance within 50 meters (approximately 160 feet) which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs, and debris piles that provide shelter to burrowing owls); and,
- Destruction and/or degradation of foraging habitat adjacent (within 100 meters, or about 300 feet) of an occupied burrow(s).

As described in Section 2.0, there are 48 active burrows (representing up to 96 adult Burrowing Owls) located within the study area. Direct removal of these burrows is not anticipated as the result of project implementation. Agricultural fields, which represent suitable foraging habitat for many of these burrows, will be disturbed during construction activities.

In accordance with the *CDFG Staff Report on Burrowing Owl Mitigation (1995)*, impacts to foraging habitat within 100 meters (approximately 300 feet) of each active burrow would require mitigation. Project implementation would result in the reduction of foraging habitat within 100 meters of up to 41 active burrows within the study area.

3.2 Avoidance and Mitigation

The following measures are described as part of Mitigation Measure B3 from the Final Environmental Impact Report for the Centinela Solar Energy Project (EGI 2011) and will avoid, minimize, or mitigate potential impacts to Burrowing Owl during construction activities:

1. To the extent practicable, initial grading and clearing within the project footprint should take place between September 1 and January 31 to avoid impacts to any breeding Burrowing Owls. Occupied burrows should not be removed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either (a) the birds have not begun egg-laying and incubation; or (b) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. If initial grading and clearing within the project footprint is to begin during the breeding season (February 1 through August 31), the following measures (#2 and #3 below) will be implemented.
2. Within 30-days prior to initiation of initial grading and clearing, pre-construction clearance surveys for this species shall be conducted by qualified and agency-approved

biologists to determine the presence or absence of this species within the grading area. The proposed grading areas shall be clearly demarcated in the field and via GPS by the project engineers and Designated Biologist prior to the commencement of the pre-construction clearance survey. The surveys shall follow the protocols provided in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CDFG 1995).

3. When removal of occupied burrows is unavoidable (this is not anticipated for the Project), the following mitigation measures shall be implemented outside of the breeding season. Passive relocation methods are to be used by the biological monitors to move the owls out of the impact zone. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow, but will exclude any animals from re-entering the burrow. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before excavation of the burrow can begin. The burrows should then be excavated by hand and filled in to prevent their reuse. The removal of active burrows on-site requires construction of new burrows or the enhancement of existing unsuitable burrows (i.e., enlargement or clearing of debris) at least one week prior to passive relocation efforts. Burrow mitigation will occur at a ratio of 2:1 at least 50 meters from the impacted area and burrows must be constructed as part of the above-described relocation efforts.
4. These measures shall be implemented if passive relocation of some burrows in accordance with the procedures listed above is determined to be an unfavorable alternative for BUOW and occupied burrows are near construction activities: During the BUOW nesting season (February 1 to August 31), the qualified biologist shall establish and mark a 250 foot non-disturbance buffer circle around the burrow. The buffer shall be staked and roped-off prior to initiating any construction activity. No activity shall take place within the avoidance buffer area to ensure that disturbance to nesting birds does not occur. Any disturbance to nesting BUOW would require prior consultation, approval and mitigation in accordance with California Fish and Game requirements.

Construction activities may occur, and temporary and/or permanent infrastructure may be installed, operated, and maintained within 75 meters of an occupied burrow during the breeding season in certain cases, and within 50 meters of an occupied burrow during the non-breeding season. If activity within 75 meters of an occupied burrow becomes necessary during the breeding season, shelter-in-place strategies (described in **Attachment 3**) would be employed. Requested burrow buffer variances are also described in **Attachment 3**. Passive relocation measures (described above) could be employed as discussed above, but such measures are not currently anticipated.

3.3 Compensation

Up to 41 active burrows (up to 82 adult Burrowing Owls) could experience impacts within the prescribed 300-foot buffer (**Attachment 4**). CSE has agreed to provide compensatory mitigation for these impacts.

The CSE Project is proposed to be constructed in phases. Construction of the initial phase, totaling 175 megaWatts (MW) of capacity and designated as “Phase Ia” and “Phase Ib”, is anticipated to begin during the second quarter of 2012; however, the construction schedule for future expansion (e.g., Phase II) has not been determined. Limited components of the Project that do not impact BUOW (e.g., the onsite switchyard or Gen-tie Line) may be constructed at any time, without preconstruction compensatory mitigation for BUOW. In the interim between start of construction of the initial phase and subsequent future expansion, fields not developed during the initial phase will continue to be used for agricultural purposes. The initial phase of construction would only impact a subset of the 41 burrows potentially impacted by the complete project. Compensatory mitigation and artificial burrow construction described in **Sections 3.3 and 3.4** would apply to impacts associated with the initial phase of construction in the near term, and mitigation for impacts associated with future expansion would take place no later than 30 days prior to construction commencing on the future expansion areas.

Because of the semi-colonial nature of Burrowing Owls (Poulin et al. 2011), as well as the high degree of home-range overlap reported in the literature (Poulin et al. 2011, DeSante et al. 2004, Rosenberg and Haley 2004) and observed within the CSE study area (Heritage 2011), CSE calculated mitigation requirements at the scale of Burrowing Owl “colonies” rather than for each burrow individually. Mitigation acreages were based on the area within a 300-foot radius of active burrows without counting areas of overlap twice. Put differently, if the 300-foot radii around two or more burrows overlapped, the radii were merged to create a single polygon and the combined mitigation acreage for the clustered burrows was based on the area of that polygon. Mitigation acreage for isolated burrows (i.e., at least 300 feet from a neighboring burrow) was calculated using the entire 300-foot radius. This method was employed to account for the high densities of owls present in the project area and the high degree of overlapping foraging areas reported for agro-ecosystems, especially the Imperial Valley. **Attachment 5** provides a more detailed explanation of Burrowing Owl home-ranges and how this mitigation strategy described above was derived.

CSE will mitigate for all of the land within the merged-polygons for any burrow that would experience impacts within the burrow’s 300 foot buffer area. **Table 1** describes the required mitigation acreages for all phases of construction on each page of the **Mitigation Mapbook (Attachment 4)**.

Table 1 – Burrowing Owl Mitigation Acreages (All Phases)

Mapbook Page	Burrow IDs	Mitigation Acreage
1	29, 31, 52, 55, 56, 59	21.3
2	24-28, 32-35	30.0
3	23, 43	7.4
5	22	6.5
8	40	6.5
9	37	6.5
10	16	6.5
11	1, 2, 17, 18, 19	15.6
12	3, 62	9.6
13	45, 46, 50, 54, 63	28.1
14	47, 48, 49, 53	12.7
14	51	6.5
15	41	6.5
15	44	6.5
16	42	6.5
<i>Total:</i>		<i>176.7</i>

Because lands associated with future expansion would remain in agricultural use during construction of the initial phase, it is possible that Burrowing Owls occupying lands associated with the initial phase could be displaced and could disperse to lands associated with future expansion. Thus, in the period between construction of the initial phase and future expansion of the Project, the locations and numbers of active burrows could change as a result of the construction of the initial phase. If future expansion construction is scheduled to begin two or more years following the completion of site preparation work associated with the initial phase, a new protocol Burrowing Owl survey following CBOC Guidelines (1993) would be required, and mitigation acreages would be recalculated based on the results of that survey.

Prior to initiating ground-disturbing activities within BUOW foraging habitat associated with the phases described above, CSE will provide compensatory mitigation for the BUOW foraging habitat to be disturbed by that phase of construction in accordance with the acreages listed in **Table 1** above or provide security for implementation of mitigation in accordance with Section 3.3.4. At least 30 days prior to initiating such ground-disturbing activities within the phases described above, CSE will provide a notification to CDFG that includes 1) a listing of the specific burrows to be impacted by the phase of construction; 2) the compensatory mitigation acreage provided for each burrow in accordance with Table 1 above. Prior to initiating ground-

disturbing activities within BUOW foraging habitat, CSE shall provide documentation that compensatory mitigation requirements for the phase of construction have been satisfied in accordance with Section 3.3.1, 3.3.2, or 3.3.3 below; alternatively, CSE may elect to provide security for implementation of mitigation in accordance with Section 3.3.4. Consistent with these requirements, prior to applicable construction of Phase Ia, CSE shall satisfy the compensatory mitigation requirements of Section 3.3.1, 3.3.2, or 3.3.3 below and shall provide the required 30-day notification to CDFG, or CSE shall provide security for implementation of mitigation in accordance with Section 3.3.4. The same procedures will be implemented prior to construction of Phase Ib. Note that at least 90 days prior to construction of any phase following Phase Ib, CSE shall coordinate with CDFG on the strategy for providing compensatory mitigation (e.g., lump sum, multiple phases, etc.).

CSE intends to use a combination of on-site mitigation, off-site mitigation and National Fish and Wildlife Foundation's (NFWF's) Impact-Directed Environmental Accounts program, as described below (any of these options could be used in any proportion to satisfy the total compensatory mitigation acreage requirement). The options for compensatory mitigation are described below.

3.3.1 Onsite Mitigation

The compensatory mitigation acreage may include protection of foraging habitat on the CSE project site. Foraging habitat would be protected through an agricultural preservation easement (or similar conservation mechanism) that restricts use of the land to cultivation of field crops (e.g., alfalfa, grain or bermuda grass) that provide suitable foraging habitat for Burrowing Owls. If practicable, on-site mitigation lands would be consolidated as a single parcel and located on the edge of the proposed CSE Facility (i.e., the mitigation area would not be surrounded by project related infrastructure). Otherwise, multiple on-site mitigation parcels located on the edge of the CSE Facility could be implemented with CDGF's concurrence.

3.3.2 Offsite Mitigation

If the off-site mitigation option is utilized, CSE will purchase an agricultural conservation easement (or provide a similar conservation mechanism) on nearby farmland. As with the onsite mitigation, the conservation easement would restrict use and crop types on the land. If conservation lands are acquired directly by CSE, those lands may be managed by CSE, or they may be transferred in fee title to CDFG, a CDFG approved non-profit organization qualified pursuant to California Government Code section 65965, or other government entity with either a conservation easement, deed restriction, or other protective measures (as approved by CDFG) over those lands. If lands are transferred to CDFG, CSE will reimburse CDFG for reasonable expenses incurred during title and documentation review, expenses incurred from other state agency reviews, and overhead related to transfer of the lands. Alternatively, CSE may secure offsite mitigation lands via an approved conservation group, a

similar approved organization that accepts and administers compensatory funds, an approved offsite mitigation fund, or an approved mitigation bank in the future, if one becomes available.

3.3.3 NFWF

To the extent that the on-site or CSE initiated off-site mitigation options are not selected to satisfy compensatory mitigation requirements, CSE would secure the remaining mitigation needs by depositing funds with NFWF. Funds for the acquisition of the land would be remitted in an amount determined by the acreage of foraging habitat impacts to be mitigated under this plan. The direct land acquisition funds are to be assessed based on current fair market appraised value for the specific geographic area in which the acquisition occurs. The Renewable Energy Action Team (REAT) Cost Table (September 2010, Attachment 6) provides estimates of fees for land acquisition and land management. Funds remitted to NFWF would be placed into the account governed by the REAT/NFWF MOA (REAT/NFWF MOA 2010).

If funds are provided to NFWF, the compensation: (1) funds will be provided no later than 30 days prior to ground disturbance within BUOW foraging habitat; (2) lands will be acquired no later than 2 years after ground-disturbing activity within BUOW foraging habitat; and (3) lands will be conserved by a legal mechanism agreed to by DFG. The management fund shall be secured by CSE and will consist of an interest-bearing account with the amount of capital sufficient to fund all monitoring, management, and protection of the acquired lands, including reasonable administrative overhead, biological monitoring, and law enforcement measures. A Property Analysis Record, or comparable method, will be conducted by CSE and reviewed by DFG, to determine the management needs and costs described above, which then will be used to calculate the amount of capital needed for the management fund. This long-term management and monitoring fund will be held and managed by an entity approved by DFG.

3.3.4 Security for Implementation of Mitigation.

CSE may proceed with ground-disturbing activities within BUOW foraging habitat before completing all of the required mitigation (including acquisition of lands), monitoring, and reporting activities by ensuring funding to complete those activities. They will provide to DFG, within 30 days prior to the Project commencing ground-disturbing activities within BUOW foraging habitat, an irrevocable letter of credit or another form of security (security) approved by DFG's Office of General Counsel. The security will allow DFG to draw on the principal sum if DFG, at its sole discretion, determines the Applicant has failed to comply with the conditions set forth herein. Even if the security is provided, CSE must complete the required acquisition, protection, and monitoring of all lands and record the required agricultural preservation easements, or other protection measures no later than 2 years after the start of ground disturbing activities within BUOW foraging habitat.

Based on the mitigation ratios established as part of the proposed action, the security required for the Applicant will be in the amount of **\$1,016,025** based on the following acreage-based estimated costs of implementing the mitigation, monitoring, and reporting requirements:

- Land acquisition costs for impacts to habitat, calculated at \$5,000.00/acre for 176.7 acre, are \$883,500;
- Long-term maintenance and management costs, calculated at \$750.00/acre, are \$132,525.

The Applicant has indicated that it will construct the Project in phases and will post security for the mitigation costs associated with each phase prior to ground construction for that phase as follows:

- Security for Phase Ia will be in the amount of **\$566,375** for 98.5 acres;
- Security for Phase Ib will be in the amount of **\$112,125** for 19.5 acres;
- Security for Phase II will be in the amount of **\$337,525** for 58.7 acres;

3.4 Artificial Burrows

Based on current survey results and project plans, no burrows would be directly impacted by the Project; however, if pre-construction surveys show that burrows would be directly impacted, artificial burrows would be created on mitigation lands at a ratio of 2:1. Artificial burrows would be either below ground or above ground.

3.4.1 Below Ground Burrows

A backhoe or similar heavy equipment would be used to dig a trench for the burrow entrance and exit openings, access-way, and a nesting chamber. Artificial burrows would be constructed based on site conditions and would generally follow accepted methodologies such as Barrett (2009) or other suitable methodologies.

3.4.2 Aboveground Burrows

For an aboveground burrow, the artificial nest chamber and entrance tubes would be the same as for an underground burrow, except these items would be arranged flat on the ground. Soil would be applied by hand to keep the nest chamber and tubes in place before a backhoe is used to build a 5-foot-high mound on top of the artificial nest features to provide comparable temperature stability to an underground burrow.

For both below- and aboveground burrows, perches may be erected near the artificial burrows to provide safe perch locations for burrowing owls and to potentially reduce the distance owls would move away when disturbed. Perches would consist of wooden “T” stakes inserted into the ground or other materials that would be suitable for each artificial burrow site.

Additionally, to shield the artificial burrows from mammalian nest predators such as coyotes and feral dogs, artificial burrows would be armored with rocks placed in such a way as to protect the tunnels and nest chambers.

4.0 Monitoring and Reporting

4.1 Monitoring

On-site and off-site mitigation lands would be monitored for a period of 5 years to determine if owls are using them. Monitoring methodologies would follow CBOC Guidelines (1993) and would target the peak of the breeding season (April 15 to July 15)_to the extent practical. Monitoring would include both a breeding season survey and a winter survey in each of the years (four visits for each survey).

Compensatory mitigation accomplished through the NFWF option would include monitoring as part of the NFWF contribution, and CSE would not be responsible for the implementation of monitoring on NFWF mitigation lands.

4.2 Reporting

Annual monitoring reports will be submitted to CDFG and BLM for the duration of the monitoring period described in **Section 4.1** above and will summarize all monitoring activities undertaken and the status of all Burrowing Owls observed on onsite mitigation lands as well as the CSE project area. Reports will include the date, time and weather conditions during surveys, the location of any Burrowing Owl observations or burrows with Burrowing Owl sign (scratches, pellets, whitewash, prey items, etc.), the number of adult and juvenile birds observed at each suspected active burrow, and general notes on foraging behaviors relative to the burrow.

4.3 Additional Construction and Operation Measures

4.3.1 Environmental Training

CSE will provide a Worker Environmental Education Program to all personnel working onsite prior to such personnel commencing any construction activities. The training will include, at a minimum, a review of Burrowing Owl identification and ecology, state and legal status of the species, guidelines on what to do if an owl is encountered during construction, and who to contact in case there any issues. This program will help promote awareness and facilitate implementation of appropriate measures for Burrowing Owls on the site.

4.3.2 Conservation Funding

Funding for all activities proposed by this plan will be provided by CSE. On-site and off-site compensatory mitigation will be guaranteed with a security, letter of credit, or other financial mechanism if the requisite conservation easement cannot be acquired prior to the start of construction.

5.0 Literature Cited

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- California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. 15 pages.
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Attachments

Attachment 1 - Burrowing Owl Survey Report (2011)

Centinela Solar Energy, LLC Protocol Burrowing Owl Survey Report 2009 - 2011

Phase I, II and III Survey Report

Prepared for:

*Centinela Solar Energy, LLC
c/o LS Power Development, LLC
5000 Hopyard Road, Suite 480
Pleasanton, California 94588*

Prepared by:

*Heritage Environmental Consultants, LLC
2870 Emporia Court
Denver, Colorado 80238*



June 2011

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1.0 PROJECT OVERVIEW

Western Burrowing Owls (*Athene cunicularia hypugea*) are common in Imperial County and were identified as a species of interest during the early planning stages for the solar electric power generating facility and associated electric line proposed by Centinela Solar Energy, LLC (CSE). The project is located in Imperial County, approximately eight miles southwest of El Centro, California, and would use Photovoltaic (PV) technology to produce up to approximately 275 megawatts (MW) of electricity on 2,067 acres of private land (CSE Facility), 1,861 acres of which are actively cultivated farmland. The CSE Facility is generally bordered by the Westside Canal on the west and Greeson Wash on the east (**Figure 1**).

The project also includes approximately 7 miles of 230-kilovolt (kV) overhead electric line (Gen-tie Line) to electrically interconnect the CSE Facility with the nearby Imperial Valley Substation. The Gen-tie Line will originate at the CSE Facility substation, located immediately south of Highway 98 and approximately ½ mile east of Pulliam Road, and extend approximately 1.5 miles generally west through the CSE Facility site. From the western boundary of the CSE Facility site, the Gen-tie Line would extend across the West Side Main Canal and continue approximately 1.25 miles through private agricultural lands south of Highway 98. The remaining approximately 4.25 miles extends through federal lands managed by the Bureau of Land Management (BLM), first west then north, to connect with the Imperial Valley Substation (**Figure 1**). The proposed ROW width on lands managed by BLM is 125 feet. Alternatives for the proposed project are all located within the survey area. The CSE Facility and Gen-tie Line are collectively referred to as the CSE Project and encompass an area referred to as the CSE Project Area.

The purpose of the surveys was to identify Burrowing Owl nests on or near the CSE Facility, within the Gen-tie Line ROW, and associated buffers (see **Section 3.0**).

2.0 Introduction

The California Department of Fish and Game (CDFG) Inland Deserts Region was contacted in April 2009 to determine if surveys should be conducted prior to an environmental analysis. Craig Weightman, Senior Environmental Scientist, CDFG requested that the surveys be conducted prior to any permitting so the results could be used as a baseline for the environmental analysis (Weightman 2009).

The Burrowing Owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the Migratory Bird Treat Act (MBTA) and California Fish & Game Code §§ 3503, 3503.5, 3513. Nesting occurs from March through August. Burrowing Owls typically form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing Owls are opportunistic feeders, consuming a diet that includes arthropods (typically insects), small mammals, small birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities in California remain in the Central and Imperial valleys (DeSante et al. 1996), where this species is a year-round resident in Imperial County.

The Burrowing Owl is primarily restricted to the western United States and Mexico. Habitat for the Burrowing Owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County it is found in desert scrub, grasslands, and agricultural areas, where it digs its own or occupies existing burrows.

The California Burrowing Owl Consortium (CBOC) developed a Survey Protocol and Mitigation Guidelines (CBOC 1993) to meet the need for uniform standards when surveying Burrowing Owl populations and evaluating impacts from development projects. These guidelines are generally accepted by the California Department of Fish and Game (CDFG) and are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect Burrowing Owls or the resources that support them. The CDFG recommended that CSE follow these guidelines for this survey (Weightman 2009).

The CBOC guidelines suggest Burrowing Owl surveys be conducted in three phases. The purpose of a Phase I survey is to assess the presence of Burrowing Owl habitat in the project area. Phase II surveys are necessary to determine if suitable burrows occur on the site. Phase III surveys are intended to characterize owl presence during the nesting season and/or during winter. This report presents the findings of the Phase I, II, and III surveys within the proposed CSE Facility, proposed Gen-tie Line corridor, and associated buffers (see **Section 3.0**).

3.0 Study Area

The study area is comprised of three main components: (1) the 2,067-acre CSE Facility; (2) the 7-mile Gen-tie Line corridor; and (3) a 500-foot buffer surrounding both the CSE Facility and the Gen-tie Line.

The CSE Facility site is primarily active agricultural lands growing crops such as alfalfa, Sudan grass, and Bermuda grass. Native vegetation on the site is generally absent with a few exceptions. The fields on the site are ringed by a series of earthen and concrete canals and drains that provide irrigation and drainage for the fields. Sporadic, very limited riparian and wetland vegetation occur along portions of the earthen canals and berms. This vegetation is a mixture of native and non-native species and includes arrow weed (*Pluchea serricea*), cattails (*Typha* sp.), tamarisk (*Tamarix ramosissima*), bitter dock (*Rumex obtusifolius*), and sprangletop (*Leptochloa* sp.). Routine maintenance of these drains and canals by the Imperial Irrigation District (IID) involves the periodic removal of vegetation to maintain uninhibited water flow. Since vegetation clearing is a routine activity, the wetland vegetation is always sparse and not well developed. Removal of this vegetation also provides suitable Burrowing Owl habitat once mammals return to these areas and excavate burrows; therefore, Burrowing Owl habitat in the project area is regularly changing, including creation of new burrow sites and loss of existing burrow sites. Topography in the study area is generally flat.

The Gen-tie Line crosses approximately 2.75-miles of active agricultural land that is similar to the CSE Facility. The remaining 4.25-miles of the Gen-tie Line crosses native desert within the Yuha Basin. This area is generally flat Colorado Desert that is intersected by several small ephemeral washes. Most habitats within this portion of the Gen-tie route are dominated by creosote bush – white bursage (*Larrea tridentate* – *Ambrosia dumosa*) scrub, smoke tree (*Psoralea argemone*) wash scrub, encelia (*Encelia frutescens* ssp. *frutescens*) – white bursage scrub, developed/disturbed areas, white bursage – disturbed, mesquite – catclaw (*Prosopis glandulosa* var. *torreyana* – *Acacia greggii*)/mesquite bosques, desert pavement, and non-vegetated sandy wash.

4.0 Survey Methods

4.1 PHASE I AND PHASE II SURVEYS

Phase I and Phase II surveys were conducted simultaneously by qualified biologists during the breeding season (March-August), according to the CBOC guidelines (1993). The Phase I habitat assessments determined that most of the study area contains suitable Burrowing Owl habitat, and Phase II burrow surveys were conducted.

Phase II surveys covered the entire study area and potentially suitable burrows were recorded. Transects at 30-meter spacing were walked along the Gen-tie Line corridor to ensure that all suitable burrows were identified, including a 500-foot buffer around the project area.

Burrows that had the potential to be used by Burrowing Owls were marked using a handheld global positioning system (GPS) unit. Photos were taken of representative potential burrows, and owl observations were noted. “Burrow Clusters” were recorded in areas that supported higher densities of burrows to minimize the number of GPS points for potentially suitable burrows.

4.2 PHASE III SURVEYS

The Burrowing Owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities varies with latitude and climatic conditions. Phase III surveys were conducted during the breeding season, beginning March 1 through August; a winter survey was also conducted on a portion of the study area in January 2010. All Burrowing Owl sightings were recorded (including occupied burrows and burrows with sign) and mapped (**Figures 3a-d**). Numbers of adults and juveniles were recorded, as well as behavior such as courtship and copulation. Territory boundaries and foraging areas were not mapped, mainly because of the difficulty posed by the active nests being so close together where home-ranges potentially overlap.

Surveys were conducted in the morning and evening (one-half hour before to two hours after sunrise and two hours before to one-half hour after sunset). Burrows were examined for owl sign during the first observation of suitable burrows during Phase III surveys and occupied burrows were mapped. Subsequent observations were conducted from fixed points that provided visual coverage of the burrows using spotting scopes or binoculars. Observers remained in the vehicle to minimize disturbance to the birds as much as possible.

5.0 Survey Results

5.1 PHASE I AND II SURVEYS

In its current condition, the study area and surrounding areas were observed to contain suitable nesting habitat for Burrowing Owls. The survey area contains both natural and artificial burrows. Observed burrow densities in native habitats along the Gen-tie Line on BLM-managed lands are significantly lower than in agricultural habitats, many burrows are too small to be suitable, and none are active. The natural burrows were most commonly associated with slopes along berms, canals, or drains where soil conditions are apparently more suitable for burrow construction. In the absence of suitable natural burrows, Burrowing Owls have been known to nest in man-made features. Numerous man-made features in the study area also provide suitable artificial burrow opportunities, including concrete and metal culverts and irrigation pipes.

Phase I and II surveys were conducted between the spring of 2009 and the spring of 2011 because the project area was expanded and the Gen-tie Line route was refined. **Table 1** lists dates, times, and weather for the Phase II surveys. One-hundred and eight potentially suitable burrows were identified during the Phase II surveys (**Figure 3; Appendix A**).

Table 1. Phase I and Phase II Surveys

Date	Time	Weather Conditions
May 18, 2009	1300-1925	111°F; clear, calm
May 19, 2009	1030-1700	100°F; clear, calm
May 20, 2009	1400-1608	113°F; clear, calm
June 16, 2009	1441-1600	85°F; partly cloudy, calm
July 5, 2010	0715-1400	67-95°; clear, calm
January 4, 2010	1030-1430	73°F, clear, calm
January 5, 2010	1015-1300	72°F, clear calm
March 21, 2011	1130-1845	63°F, clear, windy (25 mph)
March 22, 2011	0655-1658	44-71°F, clear, calm

5.2 PHASE III SURVEYS

Table 2 lists dates, times, weather, and visibility for the Phase III surveys. Due to the number of active burrows and individuals observed, data for each active burrow have been included in **Appendix A**. **Table 3** summarizes the results of the Phase III survey and breaks down results by study area component. **Figure 4** shows the location of the active burrows. To the maximum extent practicable, active burrows were surveyed in reverse order during each round of Phase III surveys so that owls could be observed at different times of the day during each survey period.

Survey Results

Table 2. Phase III Surveys

Date	Time	Weather Conditions
May 19, 2009	0450-0915	73°F; clear, calm
	1730-2015	100°F; clear, calm
May 20, 2009	0500-0857	70°F; partly cloudy, calm
	1636-2001	113°F; clear, calm
May 21, 2009	0512-0855	75°; partly cloudy, calm
June 15, 2009	1737-2009	95°F; clear, winds 5-10 mph
June 16, 2009	0405-0846	73°F; light rain, calm
	1640-2015	87°F; partly cloudy, calm
June 17, 2009	0525-0918	78°F; clear, calm
July 22, 2009	1645-1952	113°F; clear, calm
July 23, 2009	0532-0817	89°F; clear, calm
	1700-1934	105°F; clear, calm
July 24, 2009	0530-0813	84°F; clear, calm
August 17, 2009	1630-1930	108°F; clear, calm
August 18, 2009	0612-0838	80°F; clear, calm
	1638-1928	110°F; clear, calm
August 19, 2009	0605-0844	85°F; clear, calm
January 4, 2010	1515-1728	69°F; partly cloudy, calm
January 5, 2010	0630-1017	40°F; clear, calm
	1440-1703	73°F; clear, calm
January 6, 2010	0615-1002	41°F; clear, calm
July 5, 2010	0525-0640	67°F; clear, calm
	1737-1836	104°F; clear calm
March 22, 2011	1658-1930	71°F; clear, calm
March 23, 2011	0617-0905	41°F; clear, calm
	1700-1854	76°F; clear, winds ~5 mph
March 24, 2011	1650-1912	71°F; clear, winds 5-15 mph
March 25, 2011	0618-0842	57°F; clear, winds 5-10 mph

There were a total of 51 active burrows identified in the study area from 2009 to 2011. There were 11 active burrows within the CSE Facility and 38 active burrows within the 500-foot buffer area. There were no active burrows identified within the Gen-tie Line ROW and two active burrows within the Gen-tie Line's 500-foot buffer area. (**Table 3; Figure 4**).

Survey Results

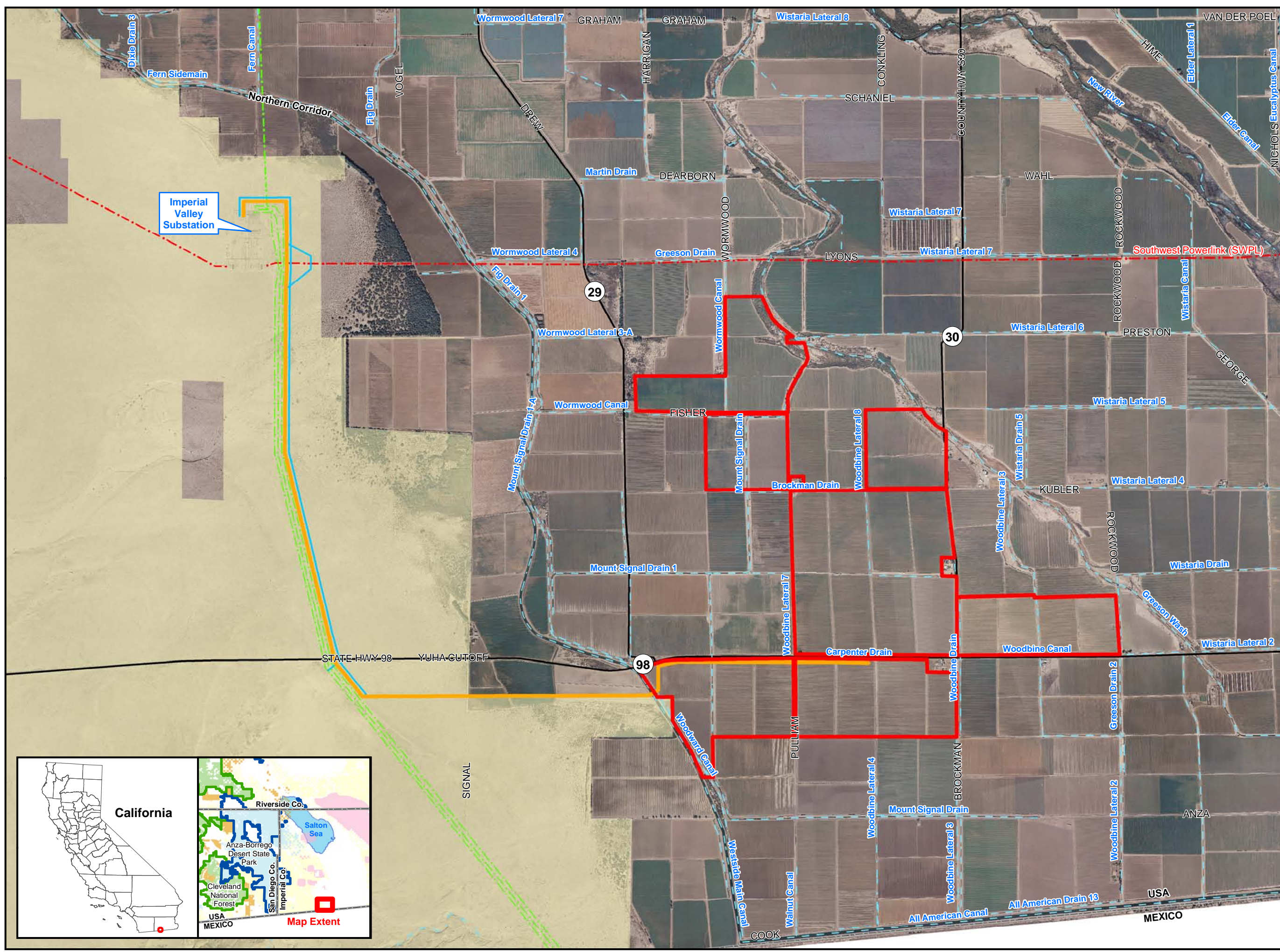
Table 3. Active Burrow Summary

Burrow Status	CSE Facility	CSE Facility Buffer	Gen-tie Line ROW	Gen-tie Line Buffer	Total
Active Burrows	11	38	0	2	51
Inactive Burrows	15	22	7	13	57
Total	26	60	7	15	108

A table enumerating all burrows and listing the survey results by year can be found in **Appendix A**.

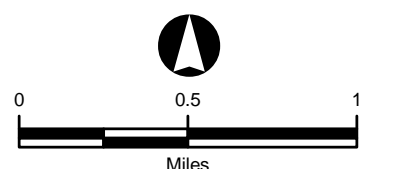
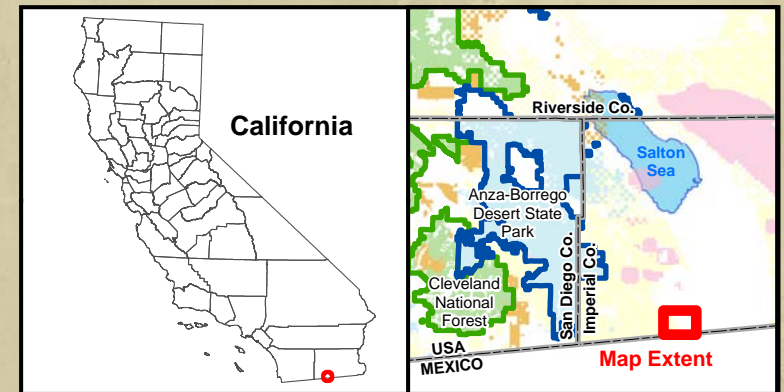
Centinela Solar Energy, LLC

Figure 1 Project Location



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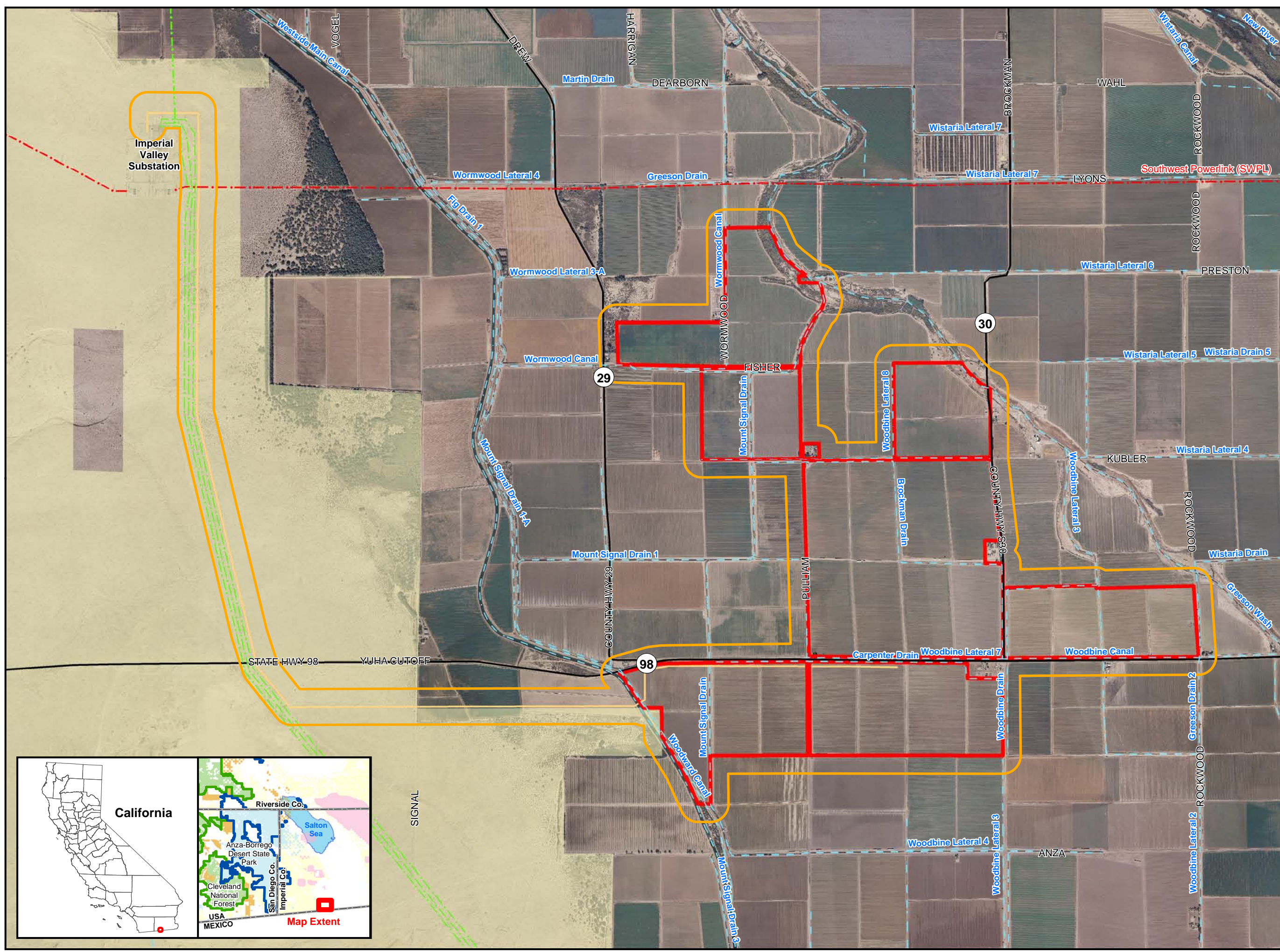
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 - - - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Alternative Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - - - County Boundary
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

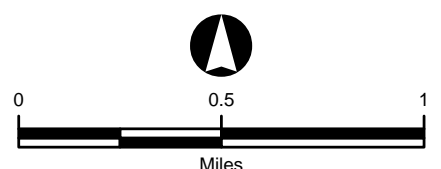
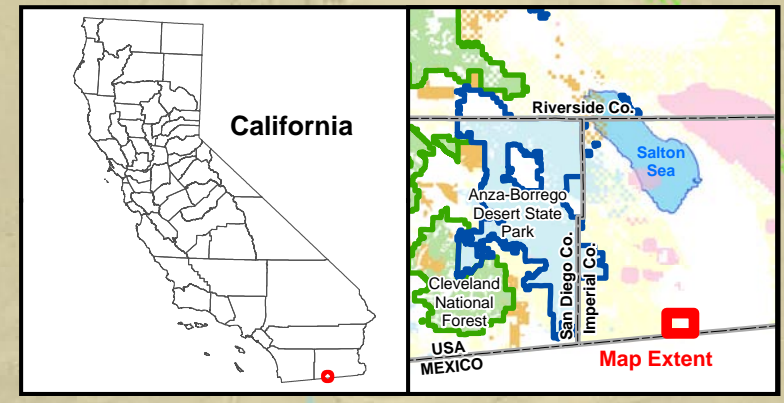
Centinela Solar Energy, LLC

Figure 2 Study Area



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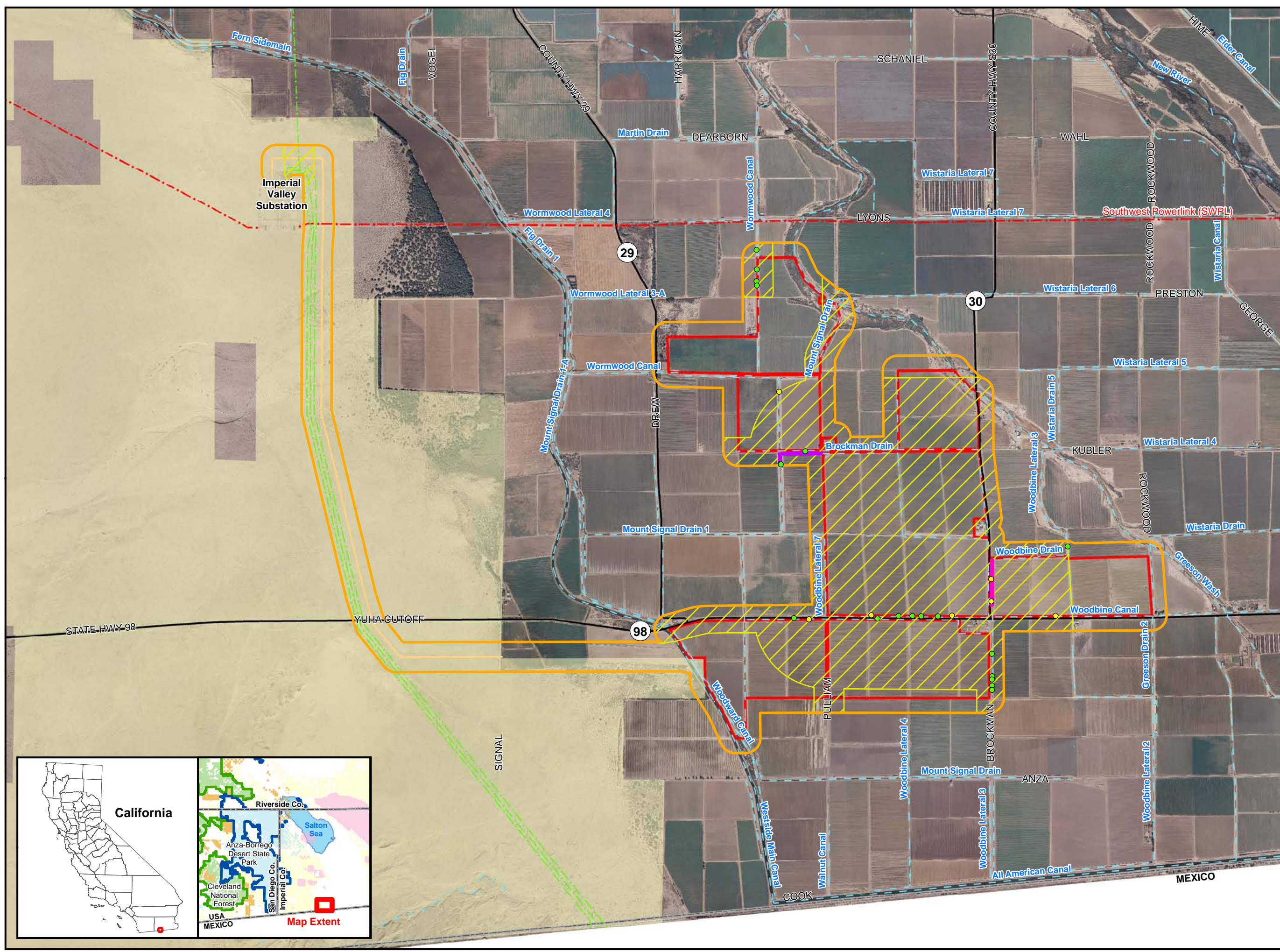
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 - Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - - - County Boundary
 - CSE Study Area
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
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- Bureau of Land Management Land
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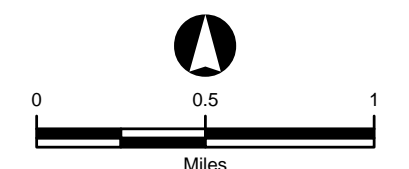
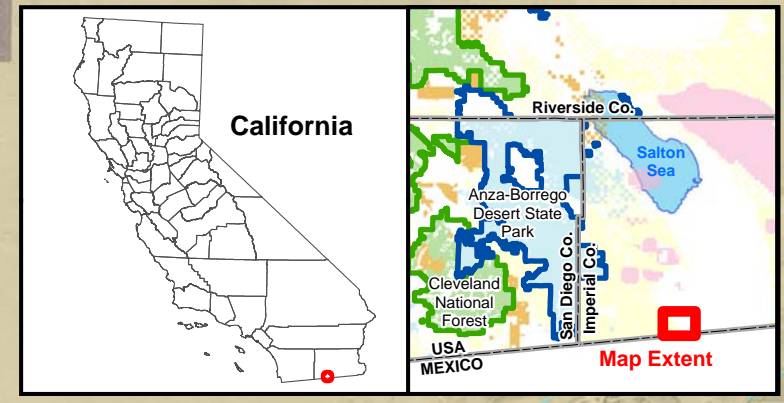
Centinela Solar Energy, LLC

Figure 3a Suitable Burrows - 2009 Breeding Season



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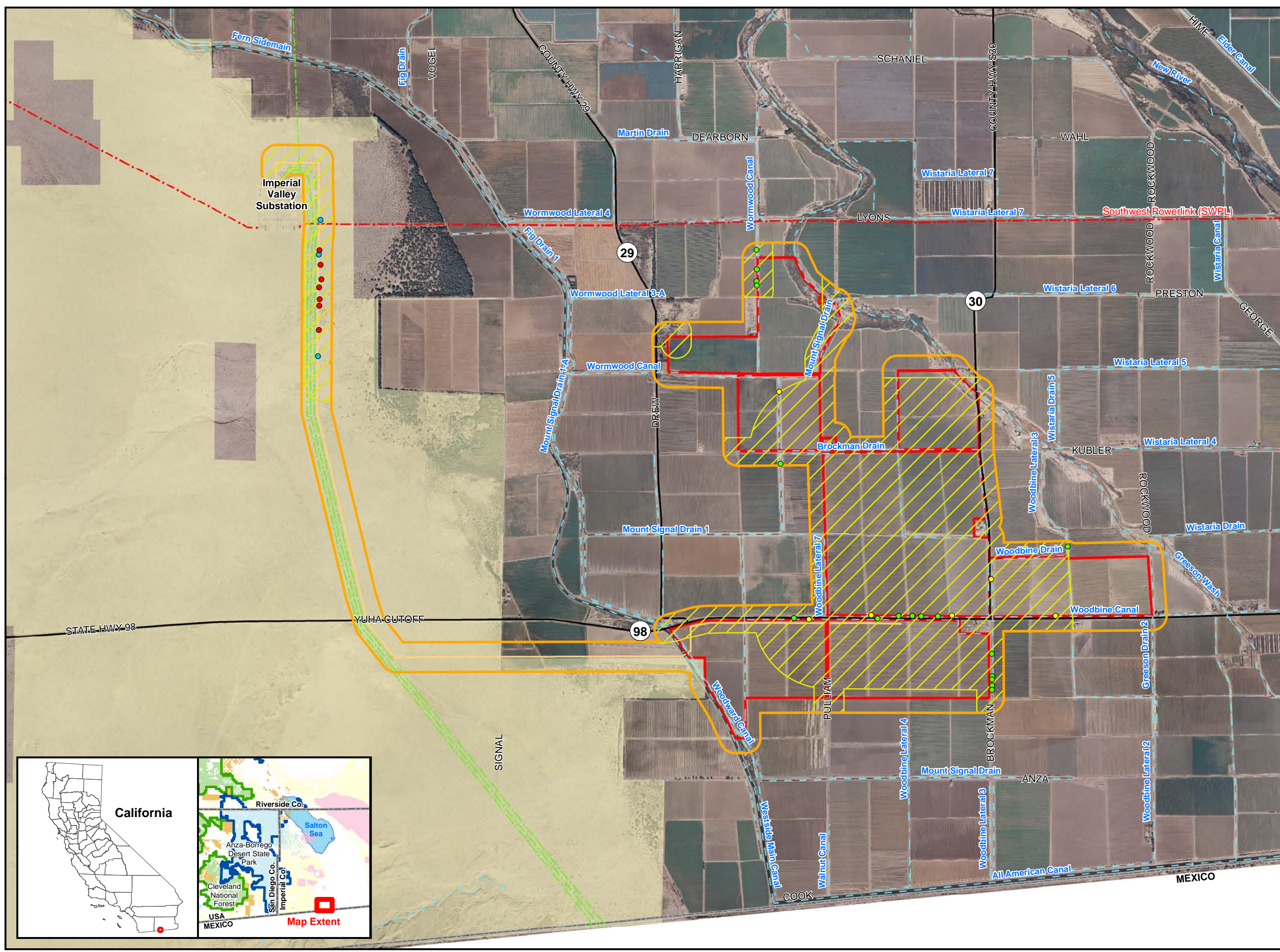
- Suitable Burrow within CSE Facility
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Burrow Cluster within CSE Facility
 - Burrow Cluster within CSE Facility 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009 Burrowing Owl Breeding Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
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- Jurisdictional Land Ownership**
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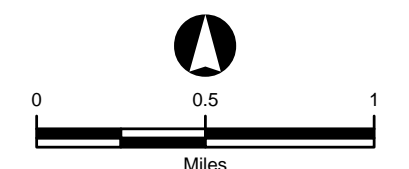
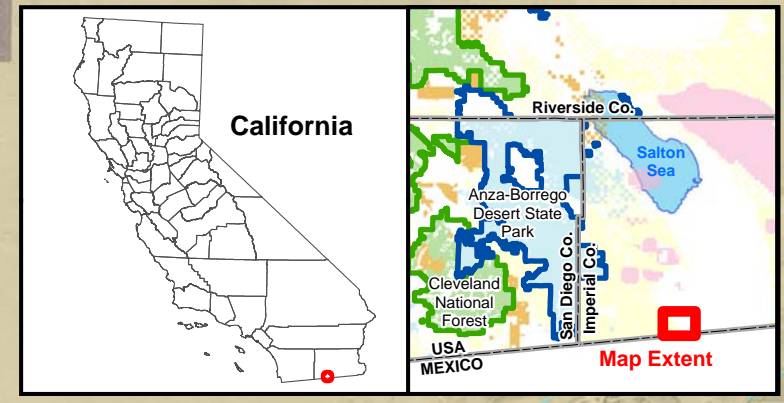
Centinela Solar Energy, LLC

Figure 3b Suitable Burrows - 2009/2010 Winter Season



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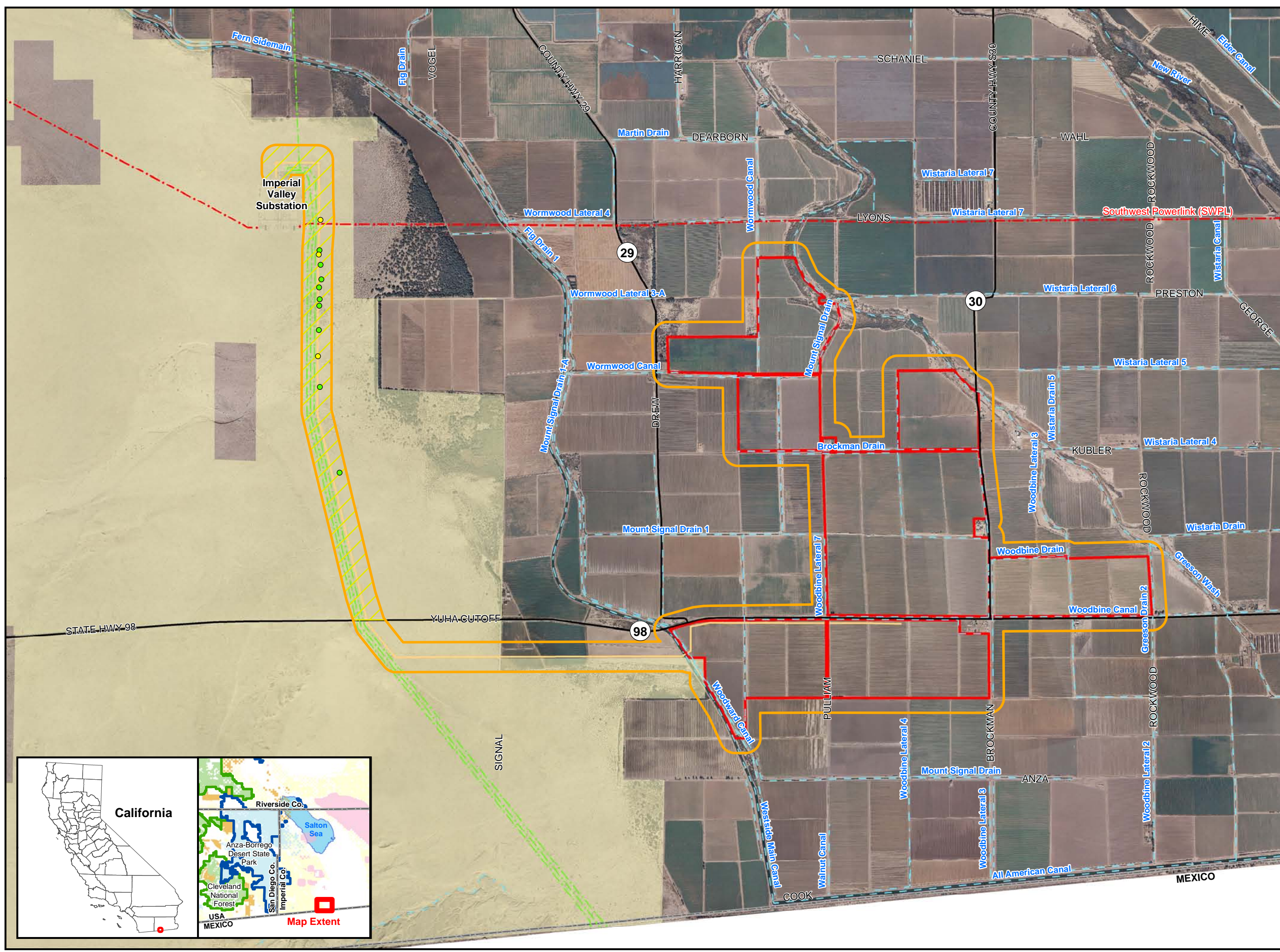
- Suitable Burrow within CSE Facility
 - Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009/2010 Winter Season Survey Area
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
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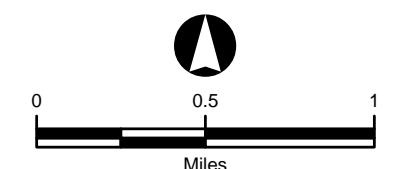
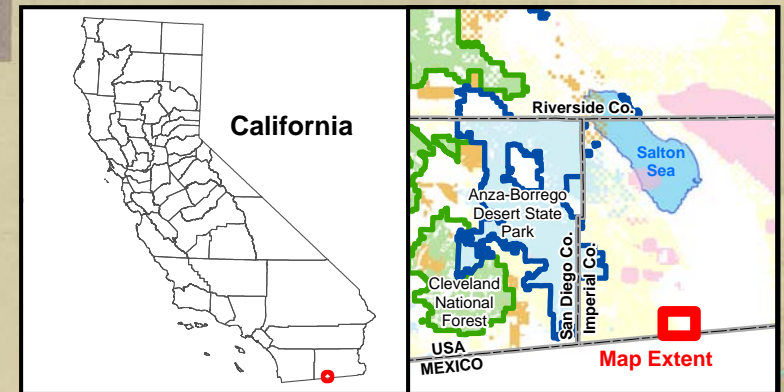
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Figure 3c Suitable Burrows - 2010 Breeding Season



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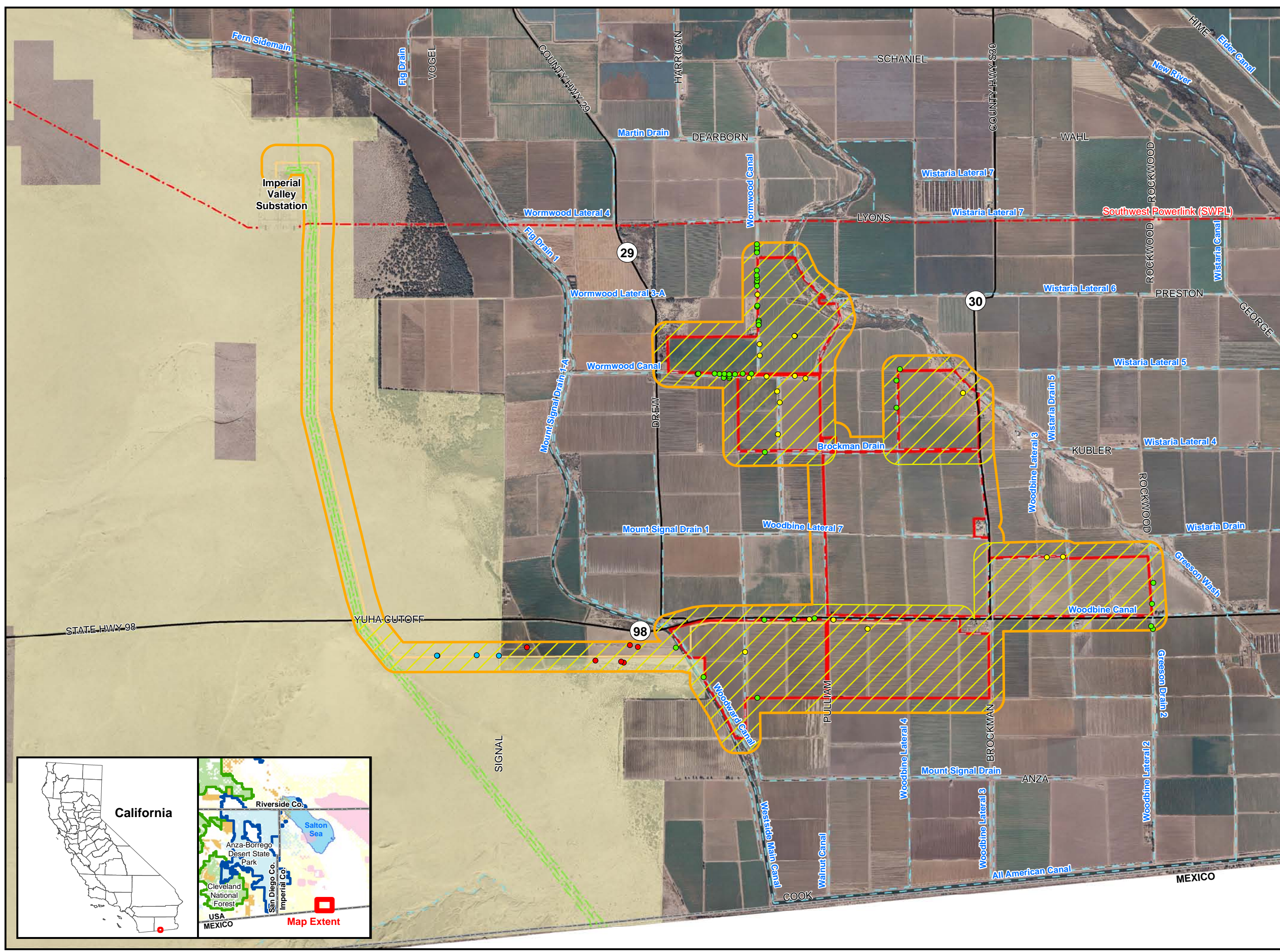
- Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2010 Burrowing Owl Breeding Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
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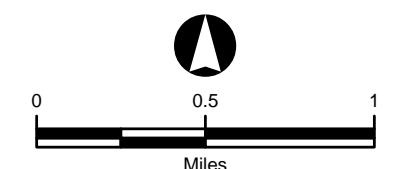
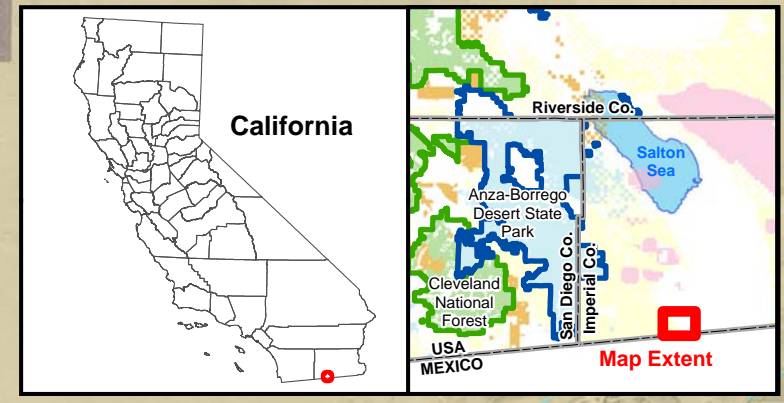
Centinela Solar Energy, LLC

Figure 3d Suitable Burrows - 2011 Breeding Season



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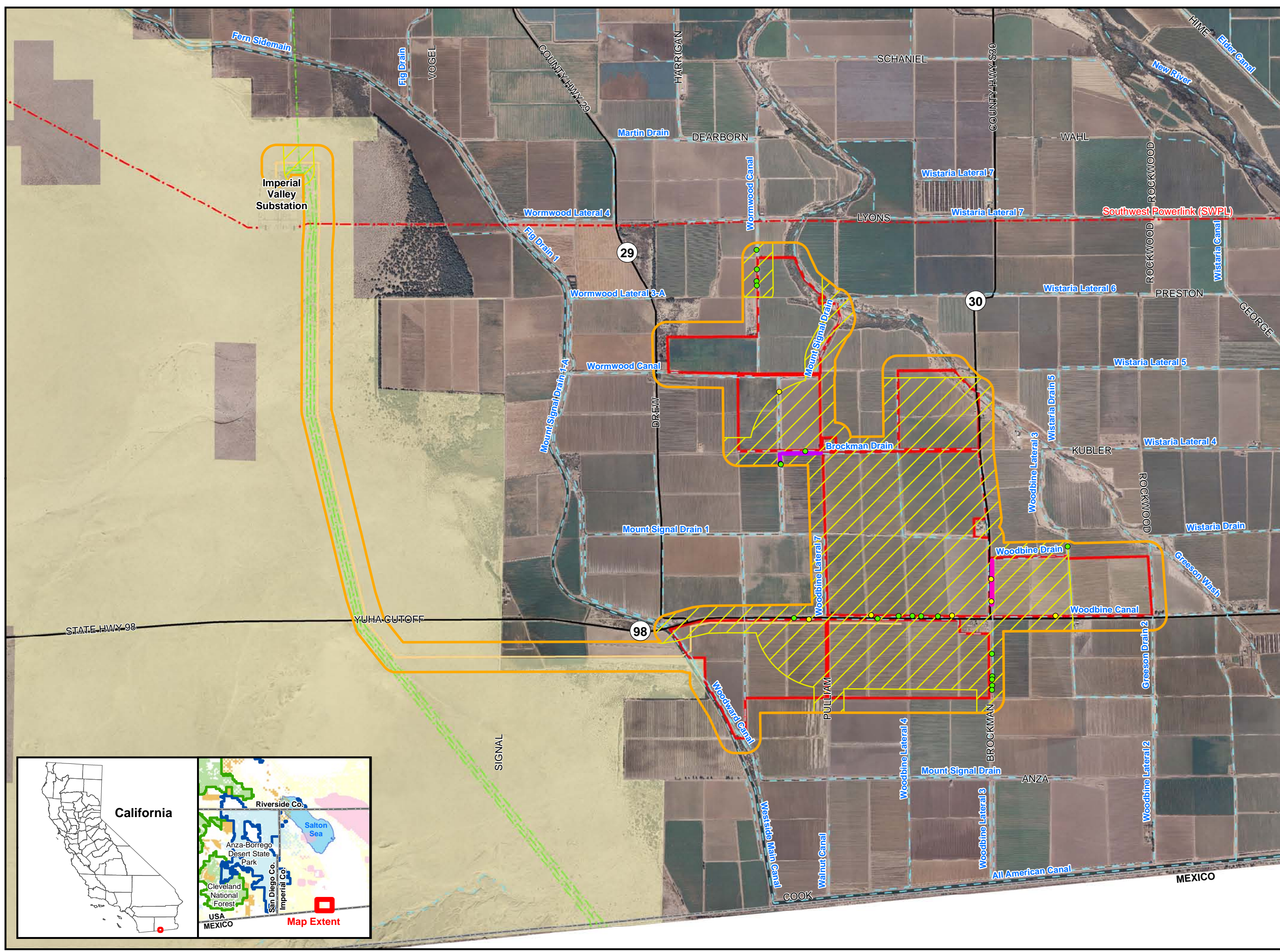
- Suitable Burrow within CSE Facility
 - Suitable Burrow within Gen-tie ROW
 - Suitable Burrow within CSE Facility 500-Foot Buffer
 - Suitable Burrow within Gen-tie 500-Foot Buffer
 - - - Existing 500 kV Transmission Line
 - - - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2011 Burrowing Owl Breeding Season Survey Area
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 - CSE Facility
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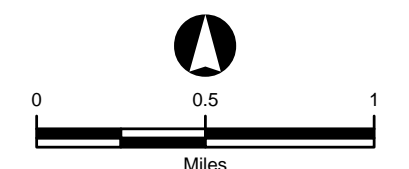
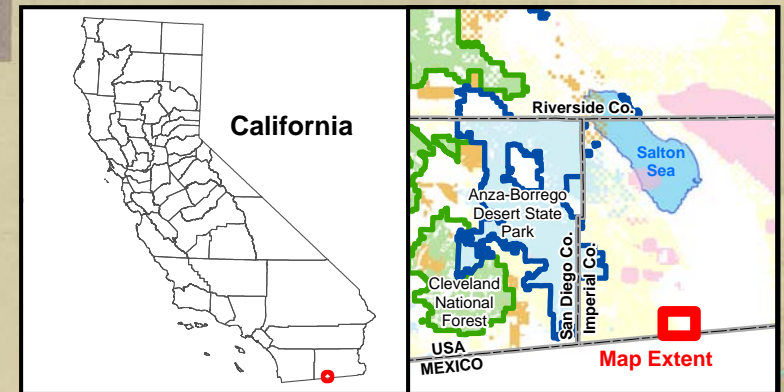
Centinela Solar Energy, LLC

Figure 4a Active Burrows - 2009 Breeding Season



Legend

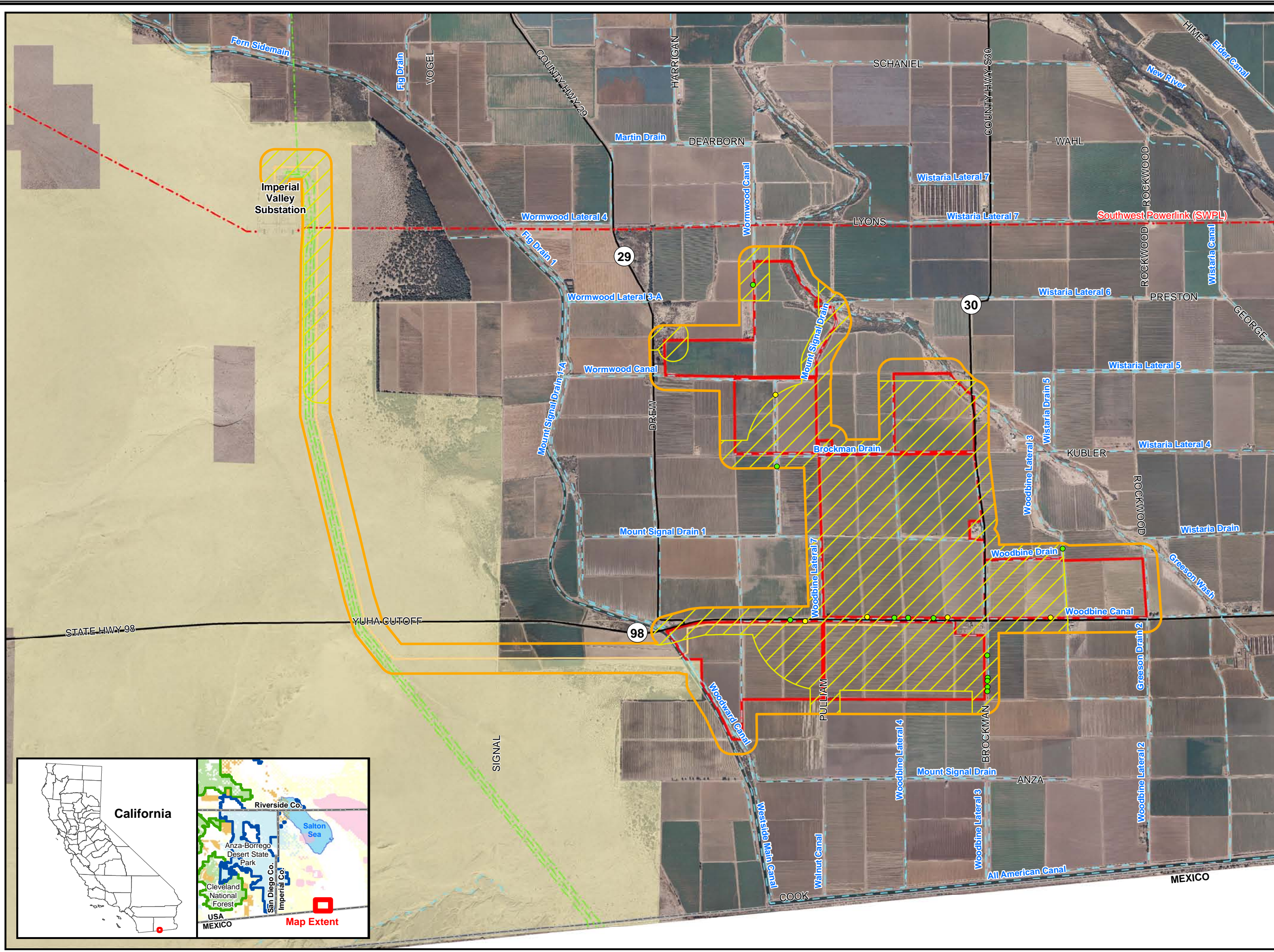
- Active Burrow within CSE Facility
 - Active Burrow within CSE Facility 500-Foot Buffer
 - Burrow Cluster within CSE Facility
 - Burrow Cluster within CSE Facility 500-Foot Buffer
 - Existing 500 kV Transmission Line
 - Existing 230 kV Transmission Line
 - Gen-tie Line Route
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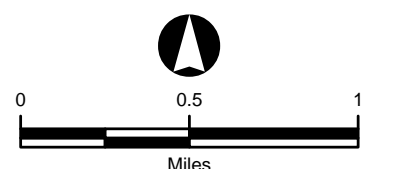
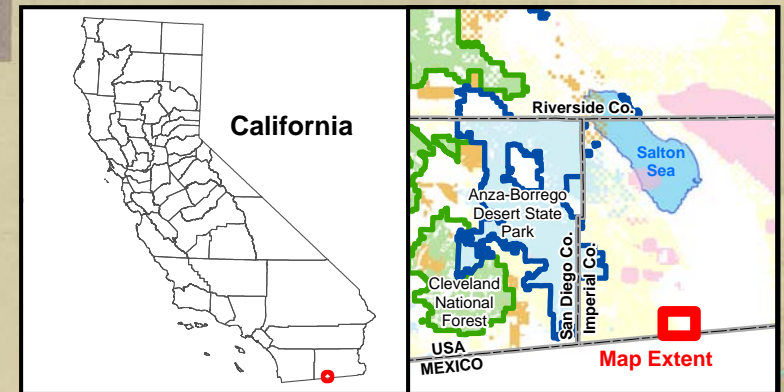
Centinela Solar Energy, LLC

Figure 4b Active Burrows - 2009/2010 Winter Season



Legend

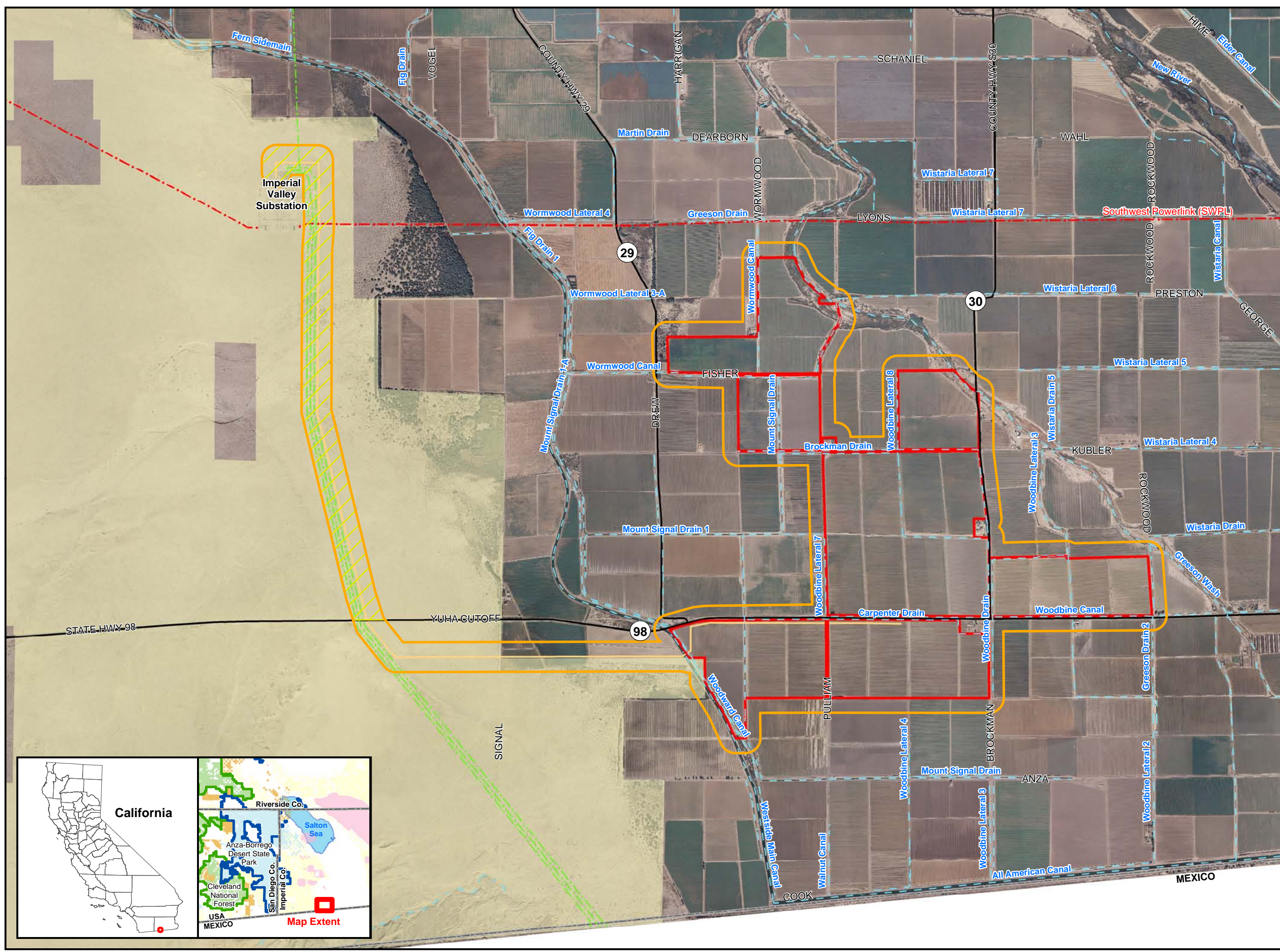
- Active Burrow within CSE Facility
 - Active Burrow within CSE Facility 500-Foot Buffer
 - - - Existing 500 kV Transmission Line
 - - - Existing 230 kV Transmission Line
 - Gen-tie Line Route
 - Major Road
 - - - Stream, Major Canal and/or Irrigation Canal
 - County Boundary
 - 2009/2010 Winter Season Survey Area
 - CSE Facility 500-Foot Buffer
 - CSE Facility
 - Major Water Body
 - Cleveland National Forest Congressional Boundary
 - State Park Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - U.S. Forest Service Land
 - Department of Defense Land
 - State Land
 - Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

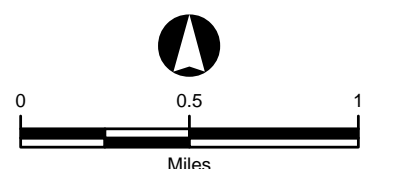
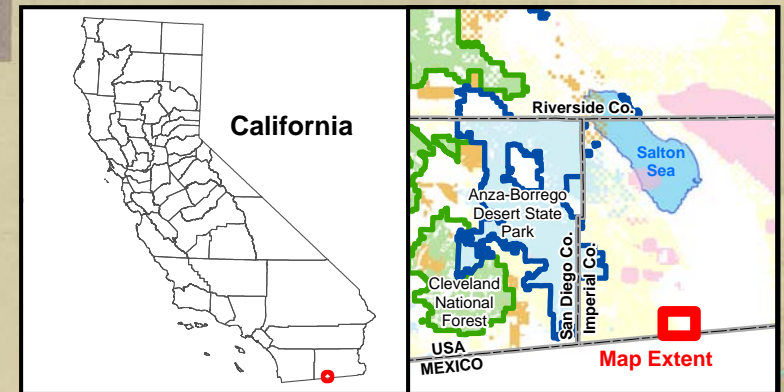
Centinela Solar Energy, LLC

Figure 4c Active Burrows - 2010 Breeding Season



Legend

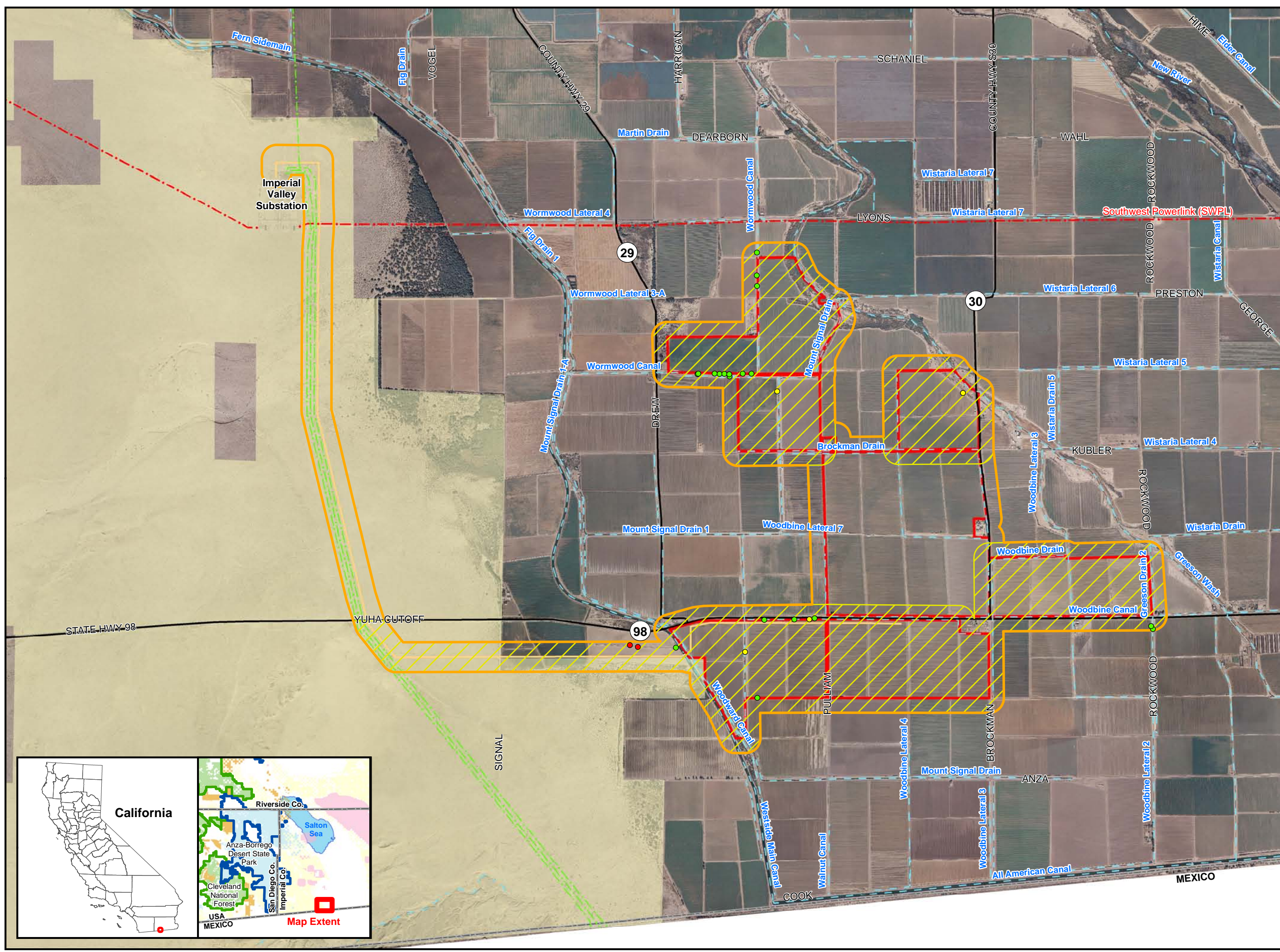
- Suitable Burrow within Gen-tie ROW
- Suitable Burrow within Gen-tie 500-Foot Buffer
- - - Existing 500 kV Transmission Line
- - - Existing 230 kV Transmission Line
- Gen-tie Line Route
- Major Road
- - - Stream, Major Canal and/or Irrigation Canal
- County Boundary
- ▨ 2010 Burrowing Owl Breeding Season Survey Area
- ▭ CSE Facility 500-Foot Buffer
- ▭ CSE Facility
- ▭ Major Water Body
- ▭ Cleveland National Forest Congressional Boundary
- ▭ State Park Boundary
- Jurisdictional Land Ownership**
- ▭ Bureau of Land Management Land
- ▭ U.S. Forest Service Land
- ▭ Department of Defense Land
- ▭ State Land
- ▭ Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

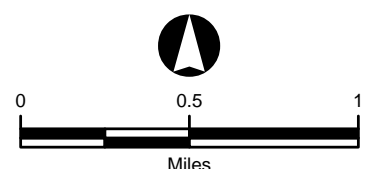
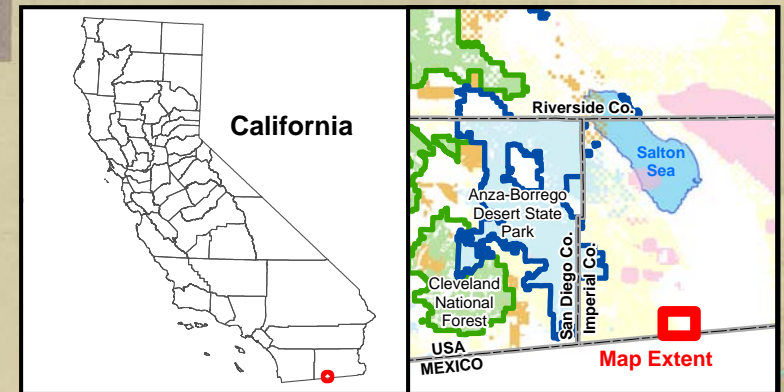
Centinela Solar Energy, LLC

Figure 4d Active Burrows - 2011 Breeding Season



Legend

- Active Burrow within CSE Facility
- Active Burrow within CSE Facility 500-Foot Buffer
- Active Burrow within Gen-tie 500-Foot Buffer
- - - Existing 500 kV Transmission Line
- - - Existing 230 kV Transmission Line
- Gen-tie Line Route
- Major Road
- - - Stream, Major Canal and/or Irrigation Canal
- County Boundary
- 2011 Burrowing Owl Breeding Season Survey Area
- CSE Facility 500-Foot Buffer
- CSE Facility
- Major Water Body
- Cleveland National Forest Congressional Boundary
- State Park Boundary
- Jurisdictional Land Ownership**
- Bureau of Land Management Land
- U.S. Forest Service Land
- Department of Defense Land
- State Land
- Indian Land



State Plane Coordinate System
California Zone 6, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

Selected Photos



Adult Burrowing Owl



Representative active burrow with pellets, scratches, whitewash, and nest debris.



Representative active burrow with prey remains (frog and crayfish), feathers, scratches, nest debris.



Representative active burrow with adult perched above and juvenile in burrow.

7.0 References

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- Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (*Athene cunicularia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/061doi:10.2173/bna.61>
- Thomsen, L. 1971. Behavior and Ecology of Burrowing Owls on the Oakland Municipal Airport. *Condor* 73: 177-192.
- Weightman, C. 2009. Personal communication [April 17 telephone conversation with P. Golden, Heritage Environmental Consultants, Denver, Colorado. *RE*: CDFG requirement for pre-CEQA/NEPA surveys and pre-construction surveys]. Biologist, California Department of Fish and Game, Bermuda Dunes Field Office, Bermuda Dunes, California. 1 page.
- Zam, M. 1974. Burrowing Owl. U. S. Department of Interior, Bureau of Land Management. Technical Note T-N 250. Denver, Colorado. 25pp.

Appendix A – Active and Inactive Burrow Summary

Burrow ID	Project Component	2009 Breeding Season ¹	2009/2010 Winter ¹	2010 Breeding Season ¹	2011 Breeding Season ¹
1	CSE Facility	Active	Active	N/S	N/S
2	500-foot Buffer	N/S	N/S	N/S	Active
3	CSE Facility	N/S	N/S	N/S	Active
4	Gen-tie ROW	N/S	N/S	N/S	Active
5	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
6	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
7	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
8	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
9	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
10	Gen-tie ROW	N/S	N/S	N/S	Active
11	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
12	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
13	Gen-tie ROW	N/S	N/S	N/S	Active
14	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
15	Gen-tie 500 ft buffer	N/S	N/S	N/S	Active
16	500-foot Buffer	N/S	N/S	N/S	Active
17	500-foot Buffer	N/S	N/S	N/S	Active
18	CSE Facility	N/S	N/S	N/S	Active
19	500-foot Buffer	N/S	N/S	N/S	Active
20	500-foot Buffer	N/S	N/S	N/S	Active
21	500-foot Buffer	Active	Active	N/S	N/S
22	CSE Facility	Active	Active	N/S	N/S
23	CSE Facility	Active	Active	N/S	N/S
24	500-foot Buffer	Active	Active	N/S	N/S
25	500-foot Buffer	Active	Active	N/S	N/S
26	500-foot Buffer	Active	Active	N/S	N/S
27	500-foot Buffer	Active	Active	N/S	N/S
28	500-foot Buffer	Active	Active	N/S	N/S
29	500-foot Buffer	Active	Active	N/S	N/S
30	500-foot Buffer	Active	Inactive	N/S	N/S
31	500-foot Buffer	Active	Inactive	N/S	N/S
32	500-foot Buffer	Active	Active	N/S	N/S
33	500-foot Buffer	Active	Active	N/S	N/S
34	500-foot Buffer	Active	Inactive	N/S	N/S
35	500-foot Buffer	Active	N/S	N/S	N/S
36	500-foot Buffer	Active	N/S	N/S	N/S
37	500-foot Buffer	Active	Inactive	N/S	N/S
38	Gen-tie 500 ft buffer	Active	Inactive	N/S	N/S
39	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
40	CSE Facility	N/S	N/S	N/S	Inactive
41	CSE Facility	N/S	N/S	N/S	Inactive
42	CSE Facility	N/S	N/S	N/S	Inactive
43	CSE Facility	N/S	N/S	N/S	Inactive
44	CSE Facility	N/S	N/S	N/S	Inactive
45	CSE Facility	N/S	N/S	N/S	Inactive
46	500-foot Buffer	N/S	N/S	N/S	Inactive
47	500-foot Buffer	N/S	N/S	N/S	Inactive

Burrow ID	Project Component	2009 Breeding Season ¹	2009/2010 Winter ¹	2010 Breeding Season ¹	2011 Breeding Season ¹
48	500-foot Buffer	N/S	N/S	N/S	Inactive
49	500-foot Buffer	N/S	N/S	N/S	Inactive
50	500-foot Buffer	N/S	N/S	N/S	Inactive
51	500-foot Buffer	N/S	N/S	N/S	Inactive
52	500-foot Buffer	N/S	N/S	N/S	Inactive
53	500-foot Buffer	N/S	N/S	N/S	Inactive
54	500-foot Buffer	N/S	N/S	N/S	Inactive
55	500-foot Buffer	N/S	N/S	N/S	Inactive
56	500-foot Buffer	N/S	N/S	N/S	Inactive
57	500-foot Buffer	N/S	N/S	N/S	Inactive
58	500-foot Buffer	N/S	N/S	N/S	Inactive
59	500-foot Buffer	N/S	N/S	N/S	Inactive
60	500-foot Buffer	N/S	N/S	N/S	Inactive
61	500-foot Buffer	Active	Active	N/S	N/S
62	500-foot Buffer	Active	Active	N/S	N/S
63	500-foot Buffer	N/S	N/S	N/S	Active
64	CSE Facility	N/S	N/S	N/S	Active
65	CSE Facility	N/S	N/S	N/S	Active
66	CSE Facility	N/S	N/S	N/S	Active
67	CSE Facility	Active	Inactive	N/S	N/S
68	CSE Facility	Active	Active	N/S	N/S
69	CSE Facility	Active	Active	N/S	N/S
70	CSE Facility	Active	N/S	N/S	N/S
71	CSE Facility	Active	Active	N/S	N/S
72	CSE Facility	N/S	N/S	N/S	Inactive
73	CSE Facility	N/S	N/S	N/S	Inactive
74	CSE Facility	N/S	N/S	N/S	Inactive
75	CSE Facility	N/S	N/S	N/S	Inactive
76	CSE Facility	N/S	N/S	N/S	Inactive
77	CSE Facility	N/S	N/S	N/S	Inactive
78	CSE Facility	N/S	N/S	N/S	Inactive
79	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
80	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
81	Gen-tie ROW	N/S	N/S	N/S	Inactive
82	500-foot Buffer	N/S	N/S	N/S	Inactive
83	500-foot Buffer	N/S	N/S	N/S	Inactive
84	500-foot Buffer	N/S	N/S	N/S	Inactive
85	500-foot Buffer	N/S	N/S	N/S	Inactive
86	500-foot Buffer	N/S	N/S	N/S	Inactive
87	500-foot Buffer	N/S	Inactive	Inactive	N/S
88	500-foot Buffer	N/S	Inactive	Inactive	N/S
89	500-foot Buffer	N/S	Inactive	Inactive	N/S
90	500-foot Buffer	N/S	Inactive	Inactive	N/S
91	500-foot Buffer	N/S	Inactive	Inactive	N/S
92	500-foot Buffer	N/S	Inactive	Inactive	N/S
93	500-foot Buffer	N/S	Inactive	Inactive	N/S
94	500-foot Buffer	N/S	N/S	Inactive	N/S
95	500-foot Buffer	N/S	N/S	Inactive	N/S
96	500-foot Buffer	N/S	N/S	N/S	Active
97	500-foot Buffer	N/S	N/S	N/S	Active
98	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
99	Gen-tie ROW	N/S	N/S	N/S	Inactive
100	Gen-tie 500 ft buffer	N/S	N/S	N/S	Inactive
101	500-foot Buffer	N/S	N/S	N/S	Inactive

Burrow ID	Project Component	2009 Breeding Season¹	2009/2010 Winter¹	2010 Breeding Season¹	2011 Breeding Season¹
102	500-foot Buffer	N/S	Inactive	Inactive	N/S
103	500-foot Buffer	N/S	Inactive	Inactive	N/S
104	500-foot Buffer	N/S	Inactive	Inactive	N/S
105	500-foot Buffer	N/S	N/S	N/S	Inactive
106	500-foot Buffer	N/S	N/S	N/S	Inactive
107	Gen-tie ROW	N/S	N/S	N/S	Inactive
108	Gen-tie ROW	N/S	N/S	N/S	Inactive

¹ N/S – Not Surveyed

Attachment 2 - Active Burrow and Owl Count Summary (2009 - 2011)

Burrow ID	Project Component	Activity Status	2009 Breeding Season													2009/2010 Winter Resident			2011 Breeding Season			
			5/18/09	5/19/09	5/20/09	5/21/09	6/15/09	6/16/09	6/17/09	7/22/09	7/23/09	7/24/09	8/17/09	8/18/09	8/19/09	1/4/10	1/5/10	1/6/10	3/22/11	3/23/11	3/24/11	3/25/11
45	CSE Facility	Active	NS	NS	2	1	NS	2	1	6	6	6	3	2	4	1	1	0	NS	NS	NS	NS
46	500-foot Buffer	Active	NS	NS	NS	NS	NS	0	2	0	1	2	2	3	1	1	0	0	NS	NS	NS	NS
47	500-foot Buffer	Active	NS	NS	NS	NS	NS	1	3	4	4	4	4	3	3	1	1	0	NS	NS	NS	NS
48	500-foot Buffer	Active	NS	NS	NS	NS	NS	2	3	6	6	2	3	3	3	1	1	1	NS	NS	NS	NS
49	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	6	8	3	3	4	1	1	1	NS	NS	NS	NS
50	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4	5	3	3	3	3	NS	NS	NS	NS
51	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4	3	4	3	2	1	NS	NS	NS	NS
52	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3	2	NS	1	3	NS	NS	NS	NS
53	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1	3	0	1	0	NS	NS	NS	NS
54	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2	1	1	1	NS	NS	NS	NS
55	500-foot Buffer	Active	NS	NS	NS	1	3	3	3	0	4	4	0	3	3	NS	0	0	NS	NS	NS	NS
56	500-foot Buffer	Active	NS	NS	NS	2	1	1	1	0	6	5	1	2	2	NS	0	0	NS	NS	NS	NS
57	500-foot Buffer	Active	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1	2	2	0	2	0	NS	NS	NS	NS
58	500-foot Buffer	Active	NS	NS	1	1	NS	0	0	0	NS	1	2	2	1	1	1	1	NS	NS	NS	NS
59	500-foot Buffer	Active	NS	NS	NS	1	2	3	1	0	2	1	1	4	2	NS	0	0	NS	NS	NS	NS
62	500-foot Buffer	Active	NS	1	2	2	NS	1	1	0	1	0	0	1	2	0	0	0	NS	NS	NS	NS
63	500-foot Buffer	Active	NS	1	1	1	NS	2	2	0	3	4	0	1	0	1	0	0	NS	NS	NS	NS

**Attachment 3 - CDFG Hay Bale Shelter-in-Place Guidance and Burrow
Buffer Variance Table**

Hay Bales

Screening burrows (e.g. hay bale walls) has been shown as effective means of minimizing disturbance to owls. Where authorized, buffers may be reduced by implementing the use of hay bales to shelter a burrow from construction activities. Hay bales will be used for agricultural and developed locations. To minimize the potential for spreading weed seeds to native areas, only certified “weed-free” hay bales may be used on land managed by the BLM.

During the breeding season, hay bales will be stacked 3 bales high and 25 feet on either side of the burrow for a total length of 50 feet.

During the non-breeding season, bales will be stacked 2 bales high and 25 feet on either side of the burrow for a total length of 50 feet.

Hay bales are generally 3 ft long and 18” tall. A minimum of 2-3 feet will be provided between the hay bales and the occupied burrow, allowing any perches that might exist beside the burrow to be maintained. As an alternative to hay bales, fencing slats or netting may be used, provided that the slats or netting are constructed to dimensions at least equivalent to those provided above for hay bales.

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
1	59	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area northeast of CSE Facility area, construction will be restricted during the breeding season for a small portion of the southeast quadrant of the avoidance area
1	31	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area northeast of CSE Facility area, construction will be restricted during the breeding season for a small portion of the southeast quadrant of the avoidance area
1	56	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located on opposite side of Wormwood Canal from CSE Facility; open fields to west
1	52	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located on opposite side of Wormwood Canal from CSE Facility; open fields to west
1	55	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located on opposite side of Wormwood Canal from CSE Facility; open fields to west
1	29	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located on opposite side of Wormwood Canal from CSE Facility; open fields to west
2	25	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	35	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	34	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	26	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	27	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	28	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	24	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located south of CSE Facility fenceline; open fields to the south
2	33	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located adjacent to Fisher Road north of Wormwood Canal; CSE Facility features to north and south
2	32	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located adjacent to Fisher Road north of Wormwood Canal; CSE Facility features to north and south
3	23	Phase Ia	standard 50-m buffer in W half; 34-m buffer in E half (to CSE Facility fenceline)	standard 75-m buffer in W half; 34-m buffer in E half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	Yes (to east but not west)	Phase II is located to west, so sheltering not necessary in that direction	Burrow is located adjacent to Mount Signal Drain; CSE Facility project features to east and west; area to west is part of Phase II

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
3	43	Phase Ia	standard 50-m buffer in W half; 15-m buffer in E half (to CSE Facility fenceline)	standard 75m buffer in W half; 15-m buffer in E half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	Yes (to east but not west)	Phase II is located to west, so sheltering not necessary in that direction	Burrow is located adjacent to Mount Signal Drain; CSE Facility project features to east and west; area to west is part of Phase II
4	57	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area, not impacted by construction or operation
5	22	Phase Ia	6-m buffer in SW half (to CSE Facility fenceline); standard 50-m buffer elsewhere	6-m buffer in SW half (to CSE Facility fenceline); standard 75-m buffer elsewhere	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Greeson Wash, with CSE Facility features to the southwest
6	38	Phase Ia	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area along Gen-tie Line corridor, not impacted by construction or operation
6	39	Phase Ia	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area along Gen-tie Line corridor, not impacted by construction or operation
7	36	Phase Ia	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area along Gen-tie Line corridor, adjustment to breeding season avoidance area needed in order to allow construction
8	40	Phase Ia	16-m buffer in E half (to CSE Facility fenceline); 28-m buffer in W half (to CSE Facility fenceline)	16-m buffer in E half (to CSE Facility fenceline); 28-m buffer in W half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week (each side) b) 1 week (each side) c) 1 week (each side) d) 1 week each (each side)	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Mount Signal Drain; CSE Facility project features to east and west
9	37	Phase Ia	1-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	1-m buffer in N half (to CSE Facility fenceline); standard 75-m buffer in S half	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	Yes	Construction could occur near burrow during breeding season	Burrow located adjacent to CSE Facility fenceline; open fields to south
10	16	Phase Ia	6-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	6-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical f) Inverter and ancillary equipment	a) 2 weeks b) 1 week c) 1 week d) 1 week e) 1 week each f) 3 weeks	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
11	2	Phase Ia	22-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	22-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads d) Pier installation	a) 1 week b) 1 week c) 1 week d) 1 week	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south
11	17	Phase Ia	9-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	9-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week e) 1 week each	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south
11	1	Phase Ia	8-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	8-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week c) 1 week d) 1 week e) 1 week each	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south
11	18	Phase Ia	8-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	8-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week e) 1 week each	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south
11	19	Phase Ia	19-m buffer in S half (to CSE Facility fenceline); standard 50-m buffer in N half	19-m buffer in S half (to CSE Facility fenceline); standard 75-m buffer in N half	a) Gen-tie construction b) Site preparation/fencing c) Roads	a) 1 week b) 1 week c) 1 week	Yes	Construction could occur near burrow during breeding season	Burrow is located adjacent to Carpenter Drain south of SR 98; CSE Facility project features to south
12	3	Phase Ia	2-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	58-m buffer in S half (to CSE Facility fenceline); 2-m buffer in N half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week (total for both sides) b) 1 week (total for both sides) c) 1 week d) 1 week each	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south
12	62	Phase Ia	37-m buffer in N half (to CSE Facility fenceline); 23-m buffer in S half (to CSE Facility fenceline)	37-m buffer in N half (to CSE Facility fenceline); 23-m buffer in S half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week (total for both sides) b) 1 week (total for both sides) c) 1 week d) 1 week each	Yes (to south but not north)	Construction could occur near burrow during breeding season	Burrow is located north of Carpenter Drain and just south of SR 98; CSE Facility features to north and south

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
13	54	Phase Ia	7-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	53-m buffer in S half (to CSE Facility fenceline); 7-m buffer in N half (to CSE Facility fenceline)	a) Collector substation construction b) 34.5-kV overhead line c) Site preparation/fencing d) Roads e) Pier installation f) Aboveground equipment: PV modules, tracker hardware, electrical	a) 3 weeks b) 1 week c) 1 week (total for both sides) d) 1 week e) 1 week f) 1 week each	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south
13	50	Phase Ia	7-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	53-m buffer in S half (to CSE Facility fenceline); 7-m buffer in N half (to CSE Facility fenceline)	a) 34.5-kV overhead line b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week (total for both sides) c) 1 week (total for both sides) d) 1 week e) 1 week each	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south
13	63	Phase Ib	8-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	53-m buffer in S half (to CSE Facility fenceline); 8-m buffer in N half	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week (total for both sides) b) 1 week (total for both sides) c) 1 week d) 1 week each	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south
13	46	Phase Ib	8-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	52-m buffer in S half (to CSE Facility fenceline); 8-m buffer in N half (to CSE Facility fenceline)	a) Stormwater basin b) Site preparation/fencing c) Roads d) Pier installation e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 2 weeks b) 1 week (total for both sides) c) 1 week (total for both sides) d) 1 week e) 1 week each	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south
13	45	Phase Ib	1-m buffer in N half (to CSE Facility fenceline); standard 50-m buffer in S half	60-m buffer in S half (to CSE Facility fenceline); 1-m buffer in N half (to CSE Facility fenceline)	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical e) Construction parking & staging area	a) 1 week (total for both sides) b) 1 week (total for both sides) c) 1 week d) 1 week each e) Year-round during construction	Yes (to north but not south)	Construction could occur near burrow during breeding season	Burrow is located north of Woodbine Lateral #7 and north of SR 98; CSE Facility features to north and south

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
14	51	Phase Ia	37-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer in E half	37-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Inverter and ancillary equipment e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 3 weeks e) 1 week each	No	Burrow is separated from CSE Facility by Wells Drain and Brockman Road; construction to W of burrow not planned during breeding season	Burrow is located east of Wells Drain and Brockman Road; CSE Facility features to west
14	47	Phase Ia	41-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer in E half	41-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	No	Burrow is separated from CSE Facility by Wells Drain and Brockman Road; construction to W of burrow not planned during breeding season	Burrow is located east of Wells Drain and Brockman Road; CSE Facility features to west
14	53	Phase Ia	39-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer in E half	39-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Inverter and ancillary equipment e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 3 weeks e) 1 week each	No	Burrow is separated from CSE Facility by Wells Drain and Brockman Road; construction to W of burrow not planned during breeding season	Burrow is located east of Wells Drain and Brockman Road; CSE Facility features to west
14	48	Phase Ia	39-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer in E half	39-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Inverter and ancillary equipment e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 3 weeks e) 1 week each	No	Burrow is separated from CSE Facility by Wells Drain and Brockman Road; construction to W of burrow not planned during breeding season	Burrow is located east of Wells Drain and Brockman Road; CSE Facility features to west
14	49	Phase Ia	36-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer in E half	36-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) 1 week d) 1 week each	No	Burrow is separated from CSE Facility by Wells Drain and Brockman Road; construction to W of burrow not planned during breeding season	Burrow is located east of Wells Drain and Brockman Road; CSE Facility features to west
15	41	Phase Ia	45-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer to E half	45-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) 1 week c) <1 week d) <1 week each	No	Burrow is separated from CSE Facility Phase I by Wells Drain, Brockman Road, and Woodbine Canal	Burrow is located between Wells Drain and Brockman Road; CSE Facility features to east and west; Phase II is to the east of this location
15	44	Phase Ia	46-m buffer in W half (to CSE Facility fenceline); standard 50-m buffer to E half	46-m buffer in W half (to CSE Facility fenceline); standard 75-m buffer in E half	a) Site preparation/fencing b) Roads c) Pier installation d) Inverter and ancillary equipment e) Aboveground equipment: PV modules, tracker hardware, electrical	a) 1 week b) <1 week c) 1 week d) 3 weeks e) <1 week each	No	Burrow is separated from CSE Facility Phase I by Wells Drain, Brockman Road, and Woodbine Canal	Burrow is located between Wells Drain and Brockman Road; CSE Facility features to east and west; Phase II is to the east of this location
16	42	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located adjacent to Woodbine Canal and north of SR 98; CSE Facility features to north
17	58	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area north of CSE Facility area, not impacted by construction or operation

Centinela Solar Energy, LLC
Proposed Adjustments to BUOW Buffer Distances

Avoidance Mapbook Sheet No.	Burrow No.	Affected by Phase I/II ^(a)	Proposed Avoidance Areas		Type of Construction Activity in Vicinity of Burrow Location	Anticipated Duration of Construction Activity ^(d)	Use Sheltering in Place During Construction During the Breeding Season?	Justification for Sheltering in Place Determination	Notes
			Non-Breeding Season Avoidance Area ^(b) (Typically 50 m Buffer)	Breeding Season Avoidance Area ^{(b),(c)} (Typically 75 m Buffer)					
18	21	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area southeast of CSE Facility area, not impacted by construction or operation
18	70	Phase II	standard 50-m buffer	standard 75-m buffer	N/A	N/A	N/A - standard buffers apply	N/A - standard buffers apply	Burrow is located in survey buffer area southeast of CSE Facility area, not impacted by construction or operation

Notes:

(a) Construction phasing designations shown here are preliminary; CSE will submit updated phasing information if necessary upon completion of final engineering.

(b) Reductions to buffers would allow permanent facility infrastructure and roads to be located within 50 and 75 meters of owl burrows.









(c) Construction traffic may travel on CSE Facility roads within the project fenceline during breeding season within breeding season buffers; however, traffic shall not stop or conduct work within breeding season avoidance areas except where such avoidance areas are adjusted to accommodate construction work. Site preparation (e.g., grading) is expected to occur from May 2012 through January 2013; therefore, a substantial portion of the grading may occur outside of the breeding season.

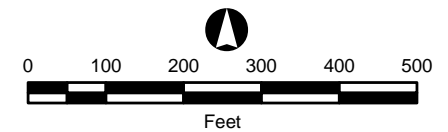
(d) Anticipated cumulative duration for each type of construction activity within the 75-meter breeding season buffer. Work on each task may be conducted intermittently throughout multiple weeks or months.

Attachment 4 - Mitigation Mapbook

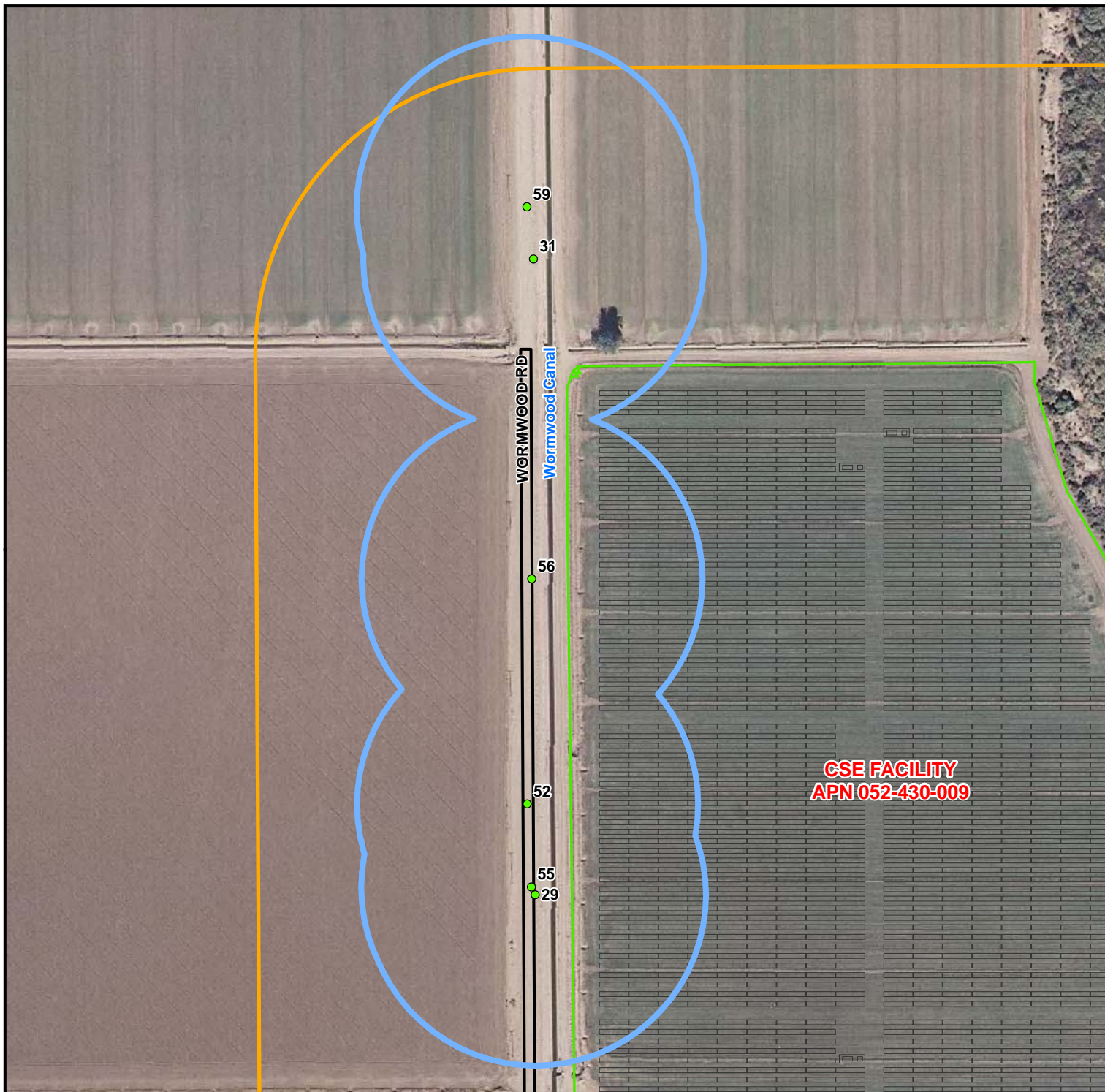
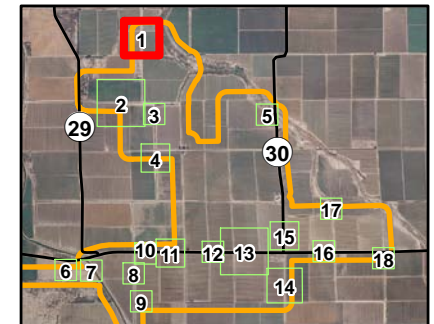
**Attachment 3
Burrowing Owl
Active Burrows**

Legend

-  Active Burrow within CSE Facility 500-Foot Buffer
-  Alternative 3 Gen-tie Line Structure
-  Alternative 3 Gen-tie Line Route
-  Fenceline
-  Merged Active Burrow Buffers for Habitat Calculations
-  Existing Road
-  CSE Project Component
-  CSE Facility 500-Foot Buffer











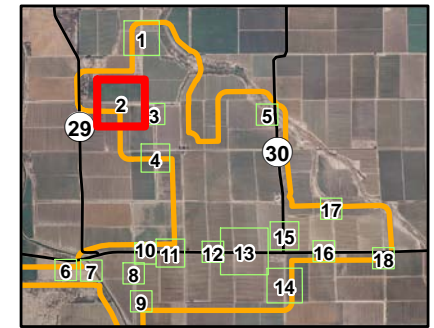
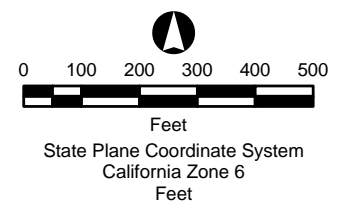
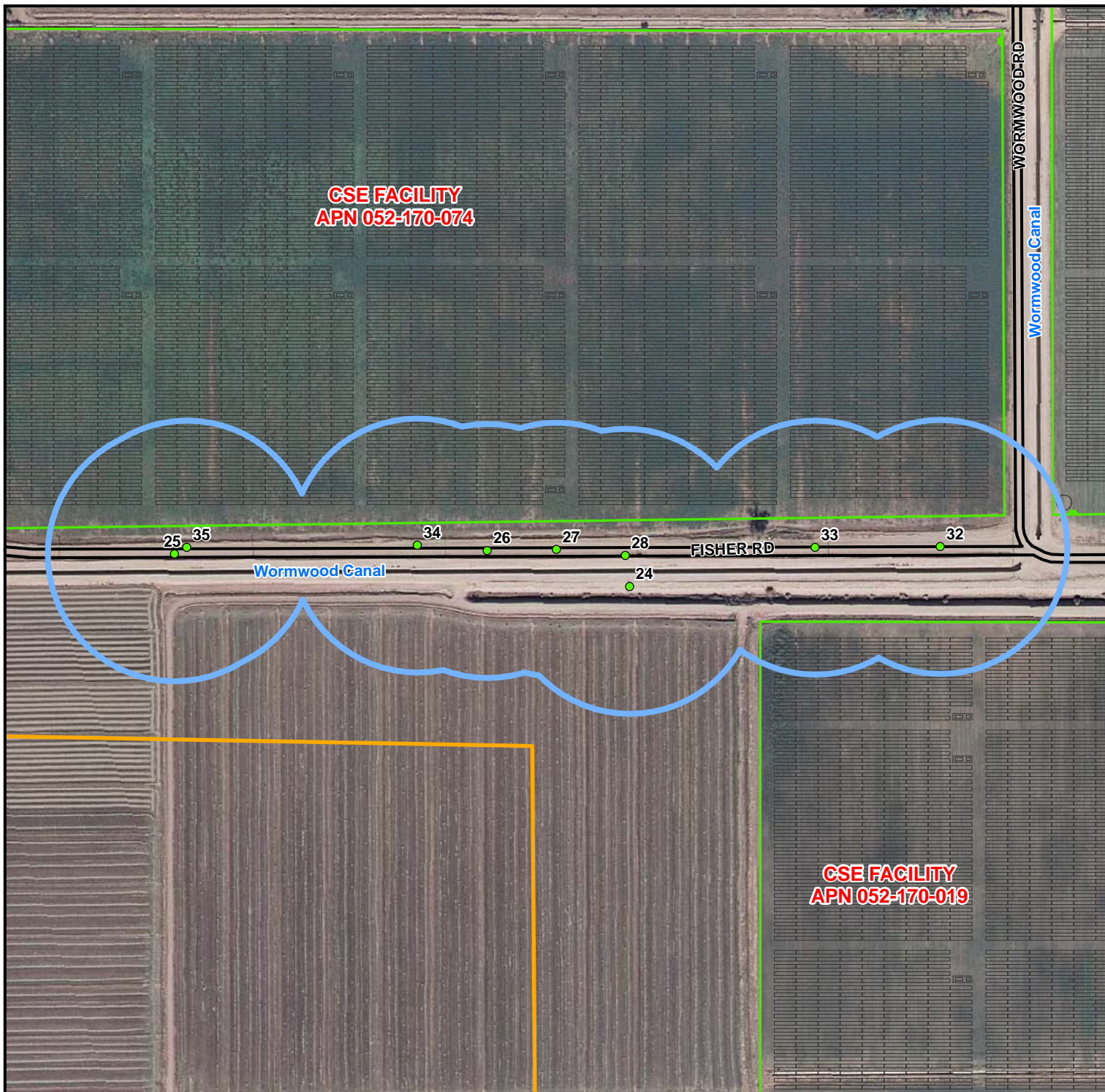
State Plane Coordinate System
California Zone 6
Feet



**Attachment 3
Burrowing Owl
Active Burrows**









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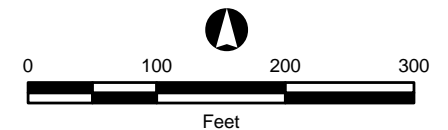
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-  Merged Active Burrow Buffers for Habitat Calculations
-  Existing Road
-  CSE Project Component
-  CSE Facility 500-Foot Buffer



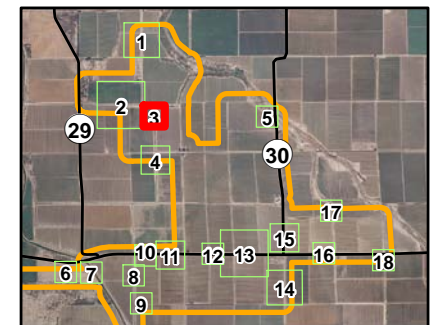
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Active Burrows**

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State Plane Coordinate System
California Zone 6
Feet



**CSE FACILITY
APN 052-170-018**

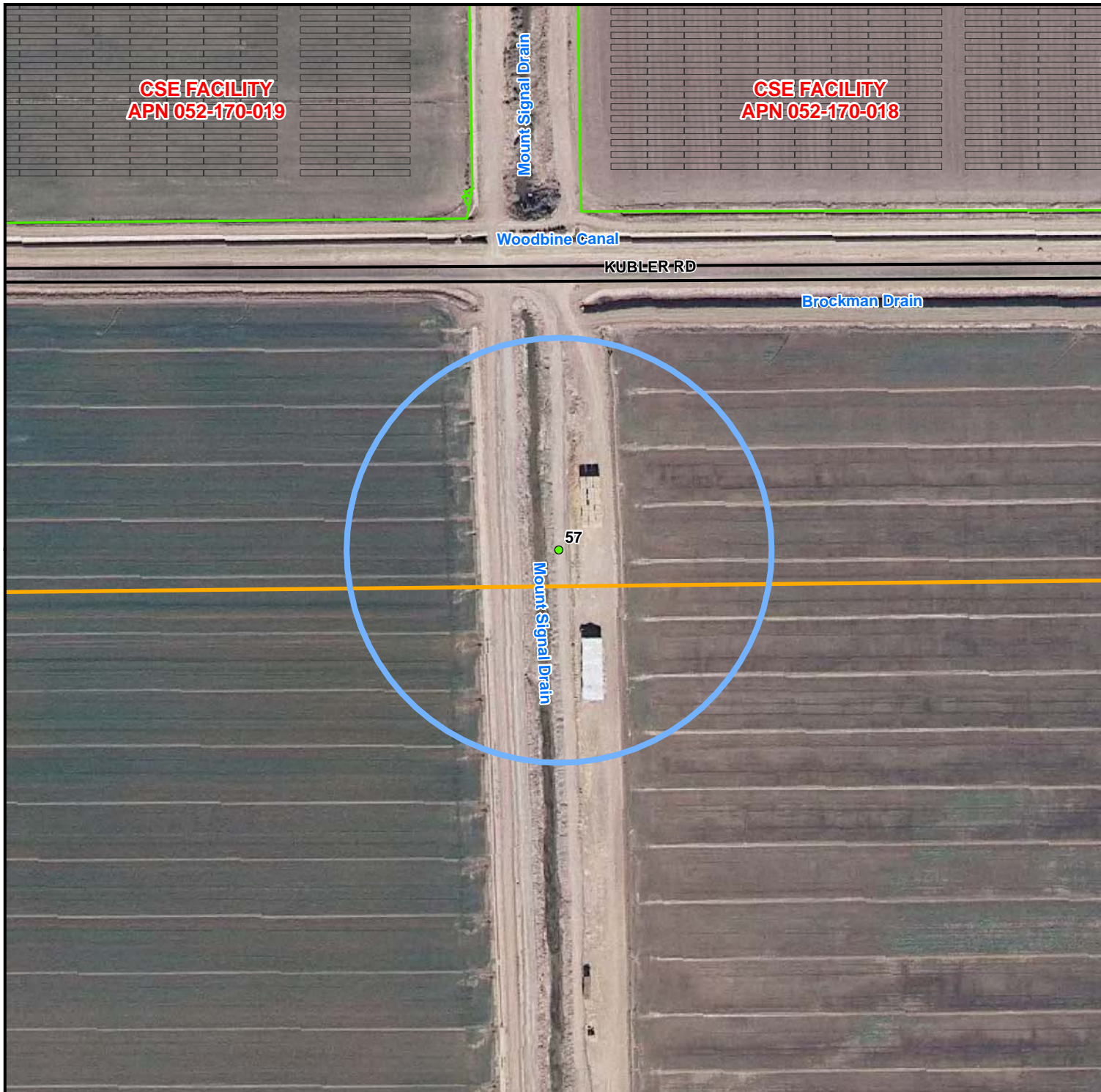
**CSE FACILITY
APN 052-170-019**

Mount Signal Drain









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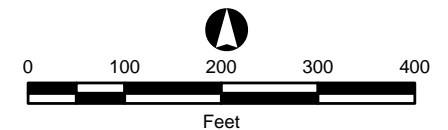
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**Attachment 3
Burrowing Owl
Active Burrows**

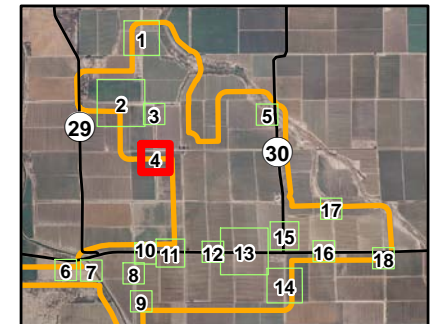


Legend

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-  Alternative 3 Gen-tie Line Structure
-  Alternative 3 Gen-tie Line Route
-  Fenceline
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-  Existing Road
-  CSE Project Component
-  CSE Facility 500-Foot Buffer











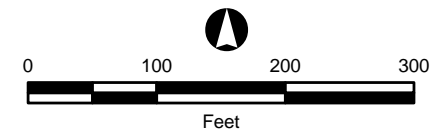
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California Zone 6
Feet



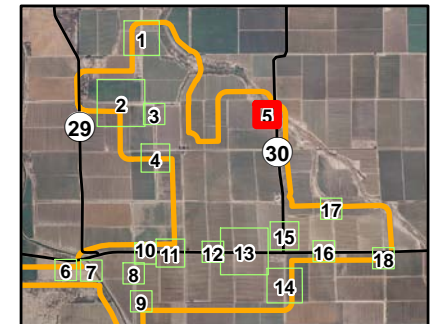
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Burrowing Owl
Active Burrows**

Legend

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





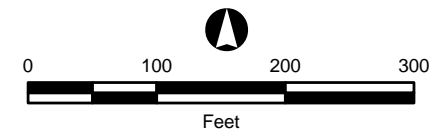
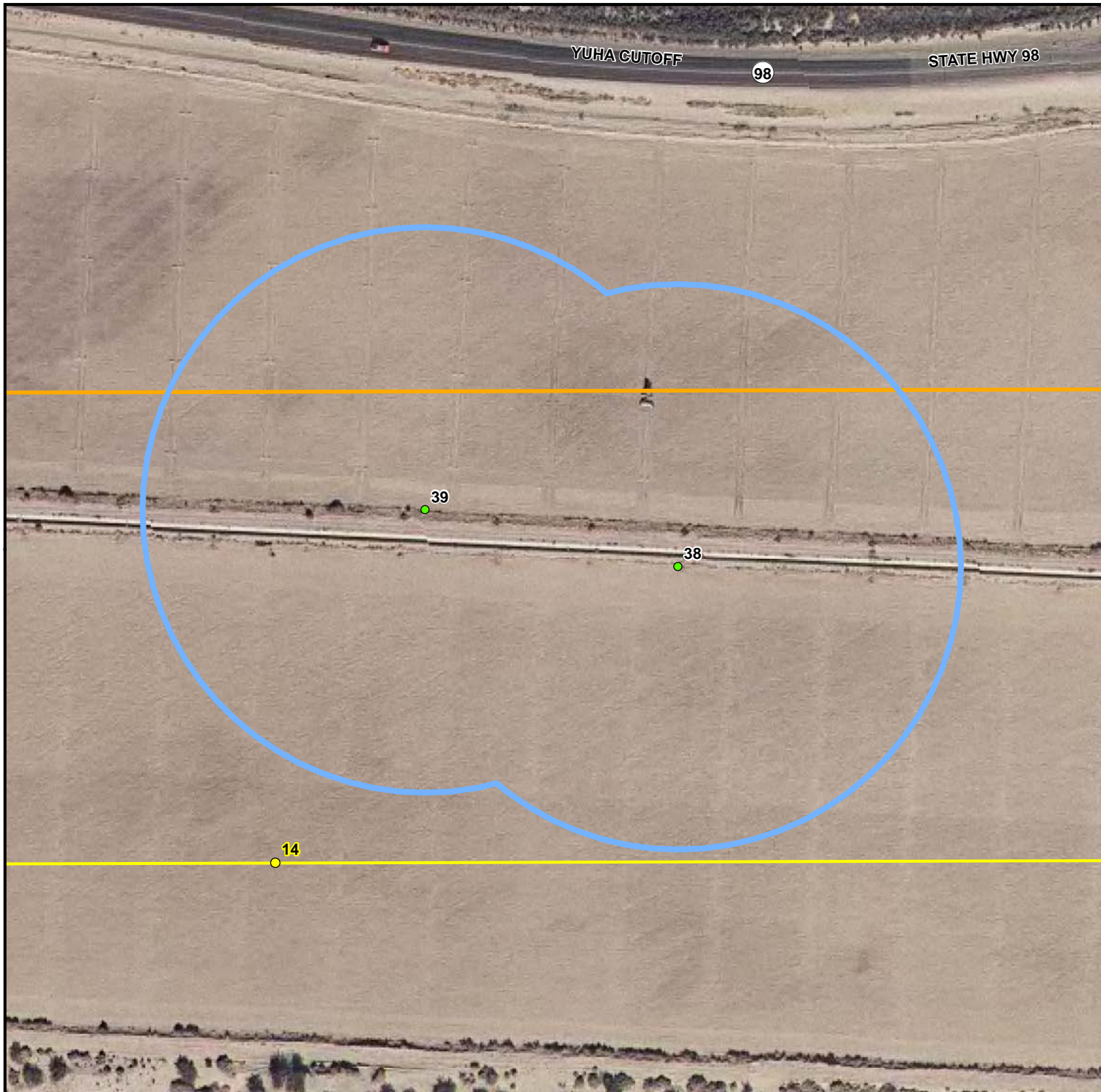
State Plane Coordinate System
California Zone 6
Feet



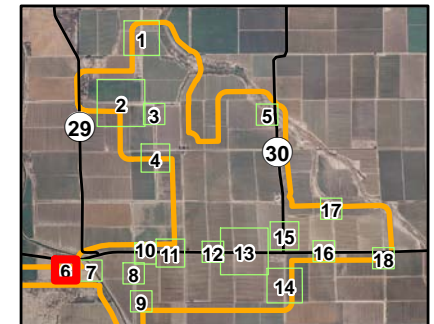
**Attachment 3
Burrowing Owl
Active Burrows**

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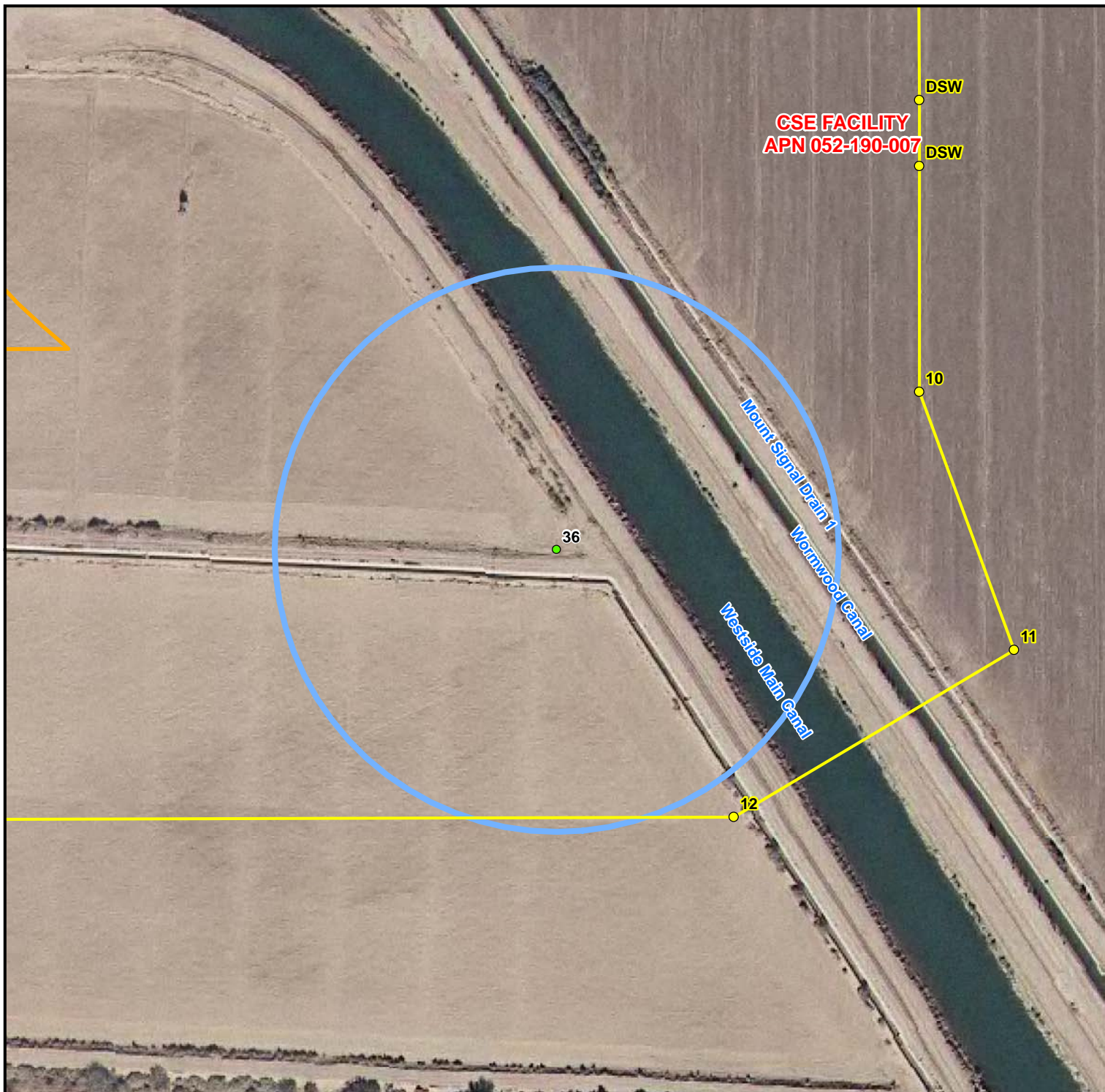


State Plane Coordinate System
California Zone 6
Feet











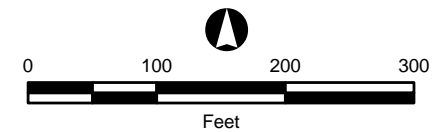
**Attachment 3
Burrowing Owl
Active Burrows**

**CSE FACILITY
APN 052-190-007**

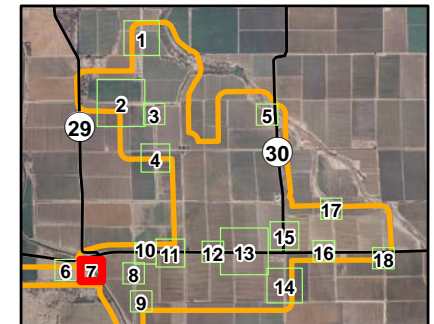


Legend

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





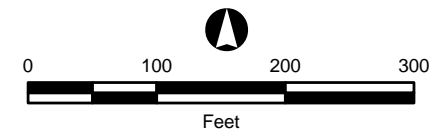
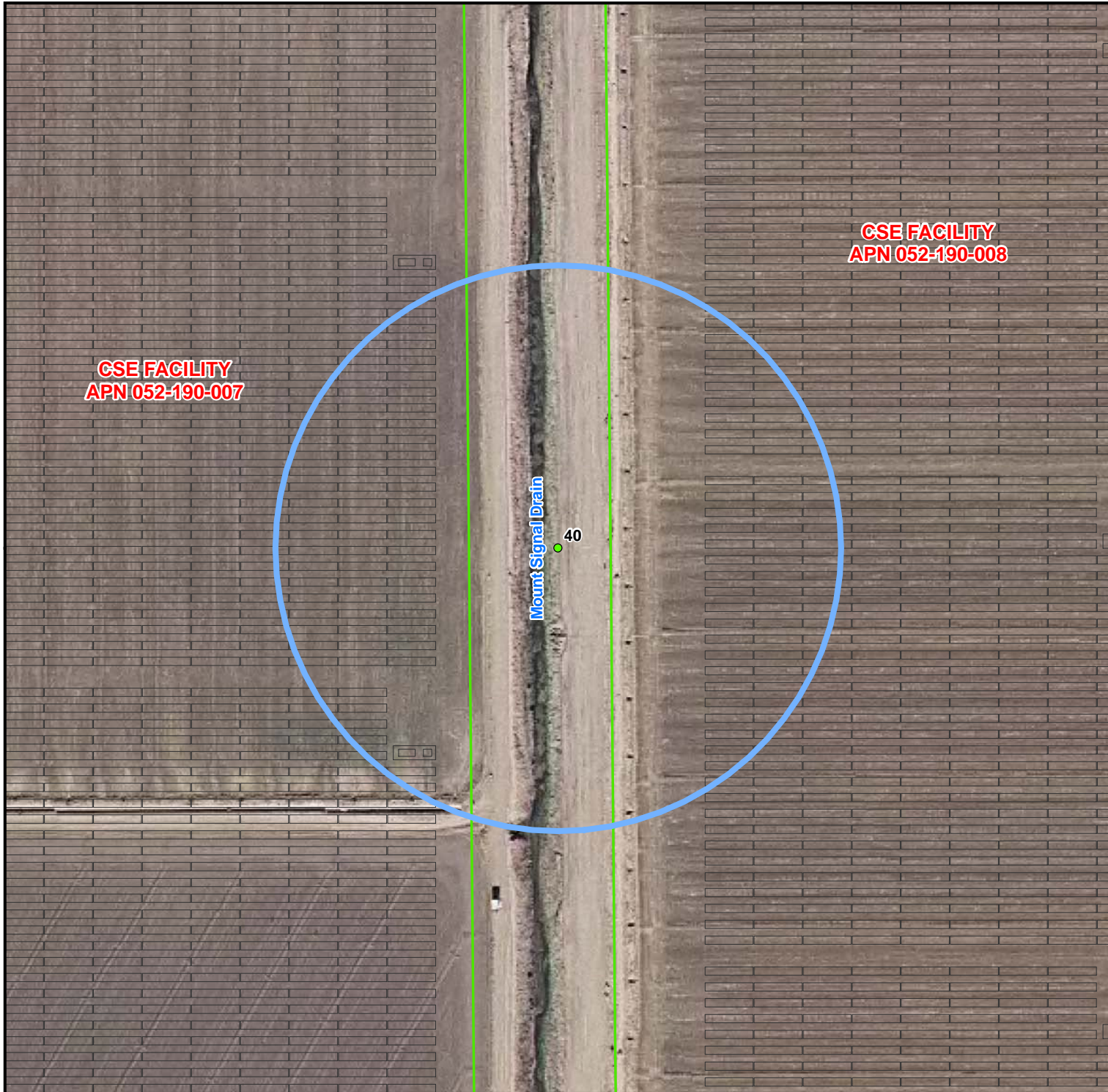
State Plane Coordinate System
California Zone 6
Feet



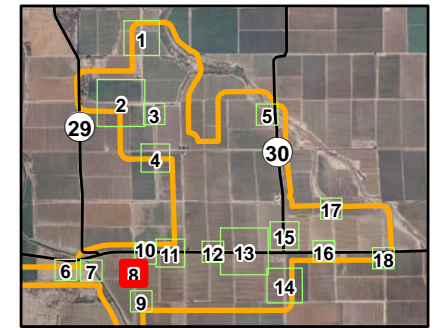
**Attachment 3
Burrowing Owl
Active Burrows**

Legend

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State Plane Coordinate System
California Zone 6
Feet



**Attachment 3
Burrowing Owl
Active Burrows**









**CSE FACILITY
APN 052-190-007**

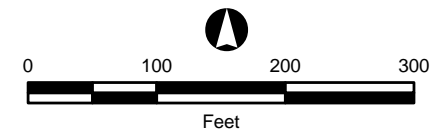
**CSE FACILITY
APN 052-190-008**

Mount Signal Drain

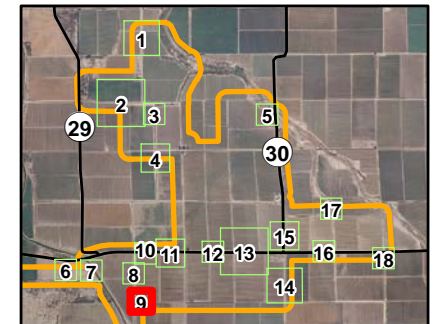
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Legend

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-  CSE Facility 500-Foot Buffer











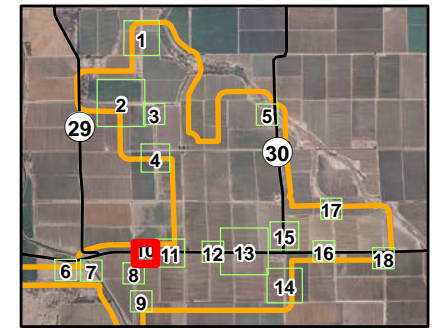
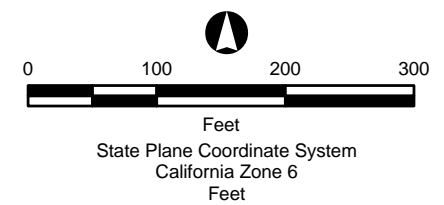
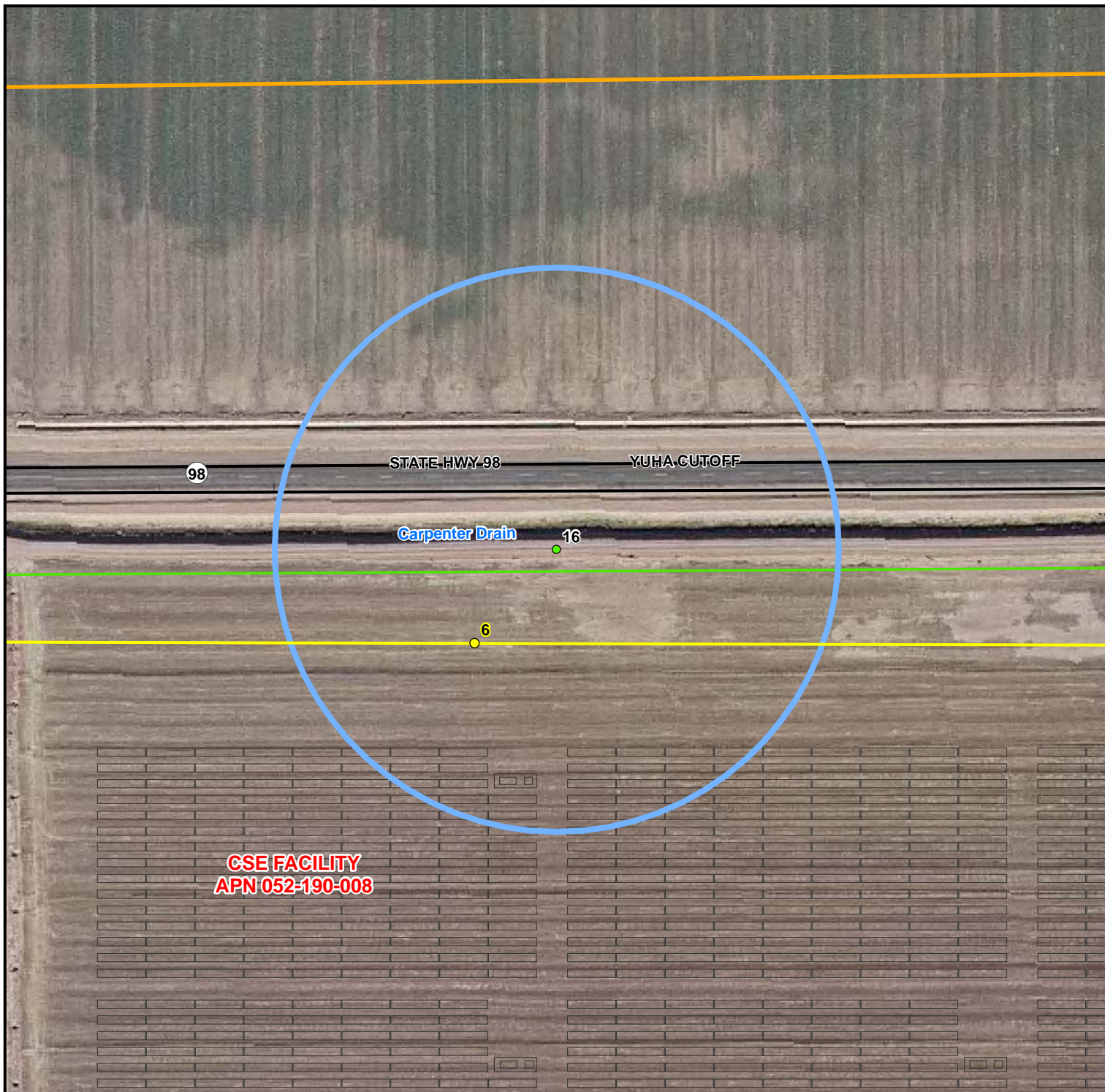
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California Zone 6
Feet



**Attachment 3
Burrowing Owl
Active Burrows**









Legend

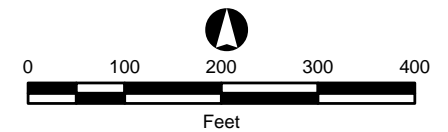
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-  Fenceline
-  Merged Active Burrow Buffers for Habitat Calculations
-  Existing Road
-  CSE Project Component
-  CSE Facility 500-Foot Buffer



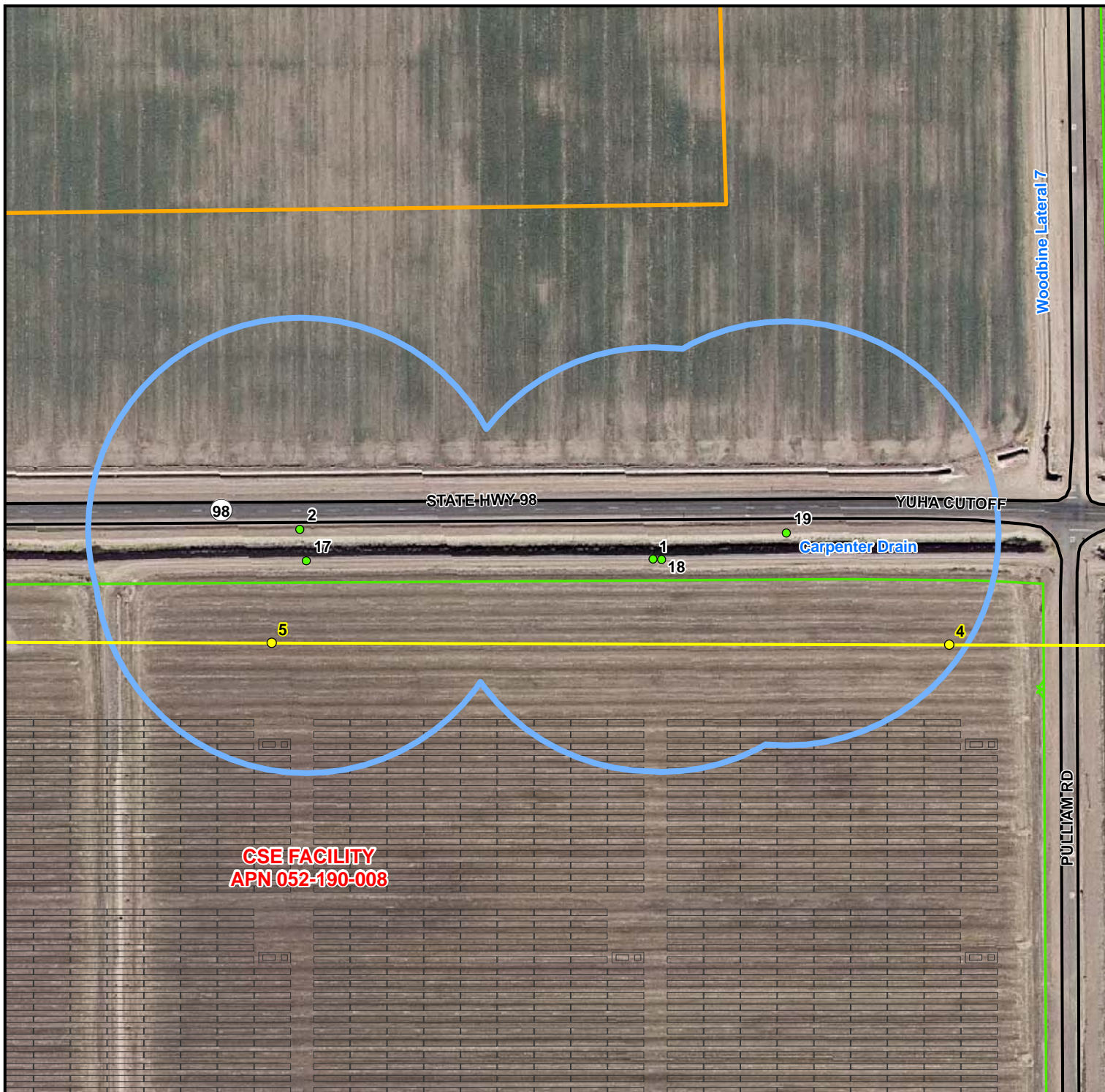
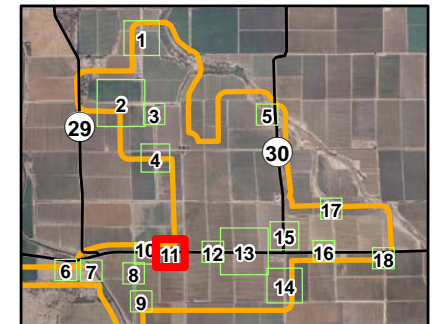
**Attachment 3
Burrowing Owl
Active Burrows**

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State Plane Coordinate System
California Zone 6
Feet

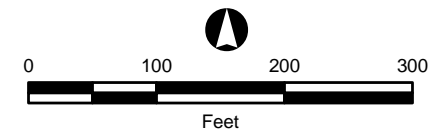
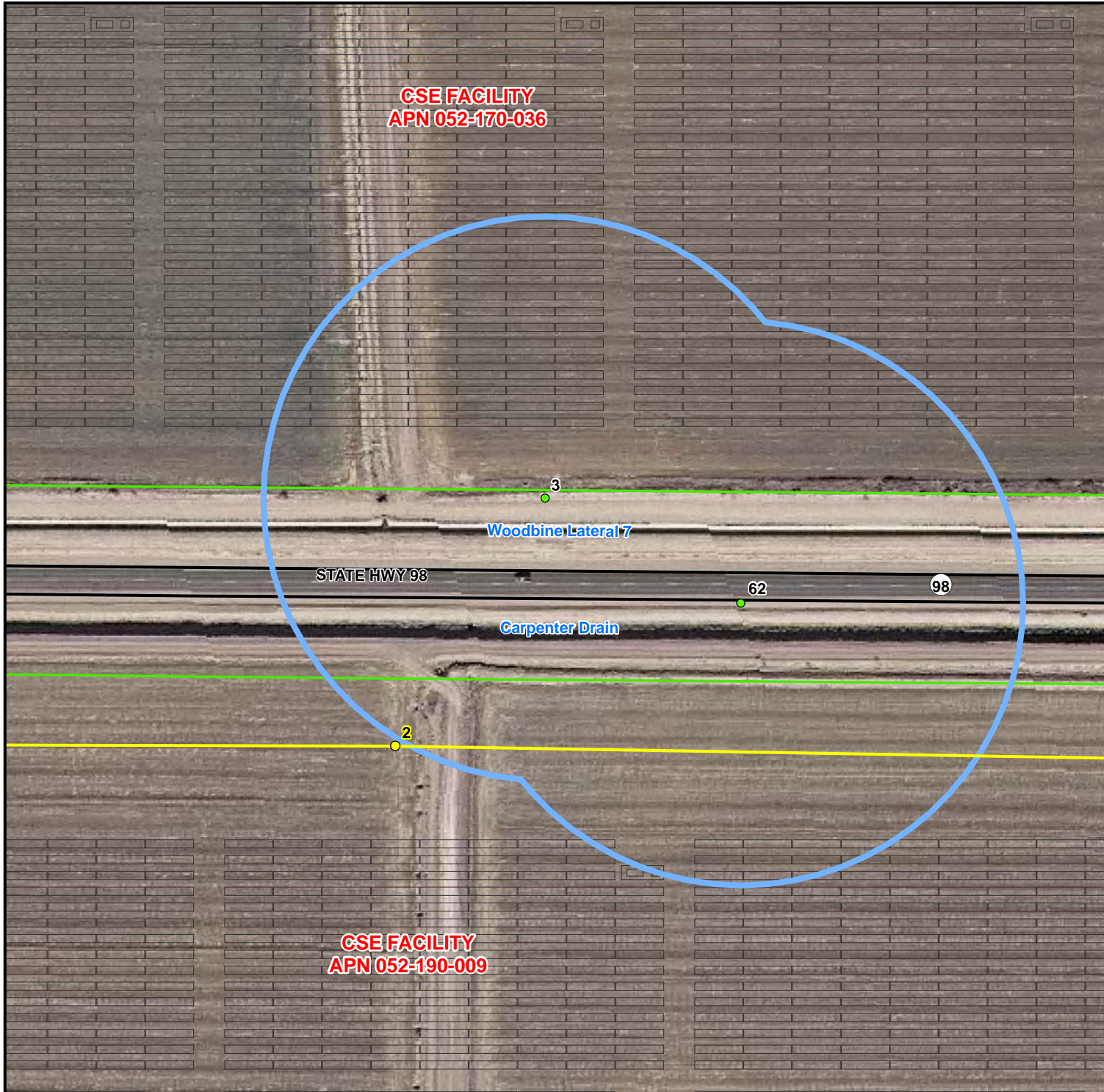


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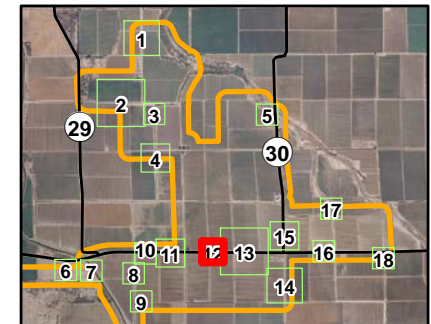
**Attachment 3
Burrowing Owl
Active Burrows**

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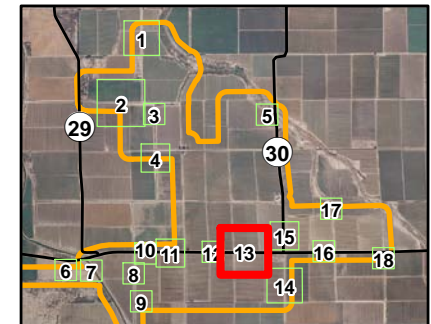
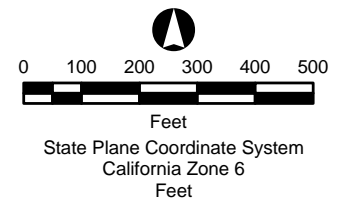
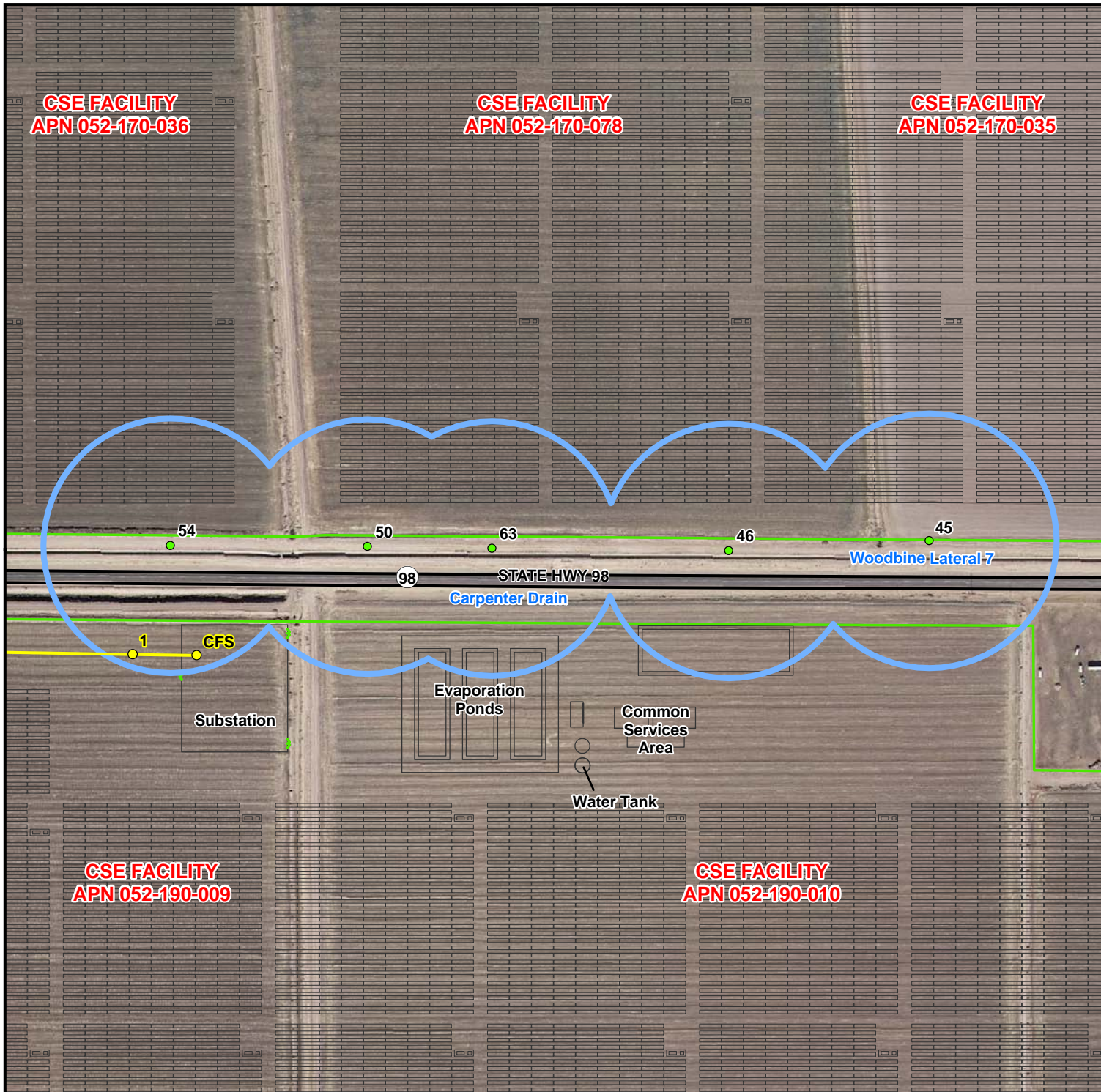
State Plane Coordinate System
California Zone 6
Feet



**Attachment 3
Burrowing Owl
Active Burrows**









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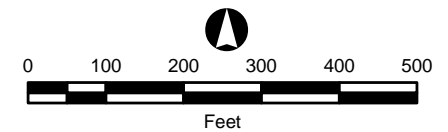
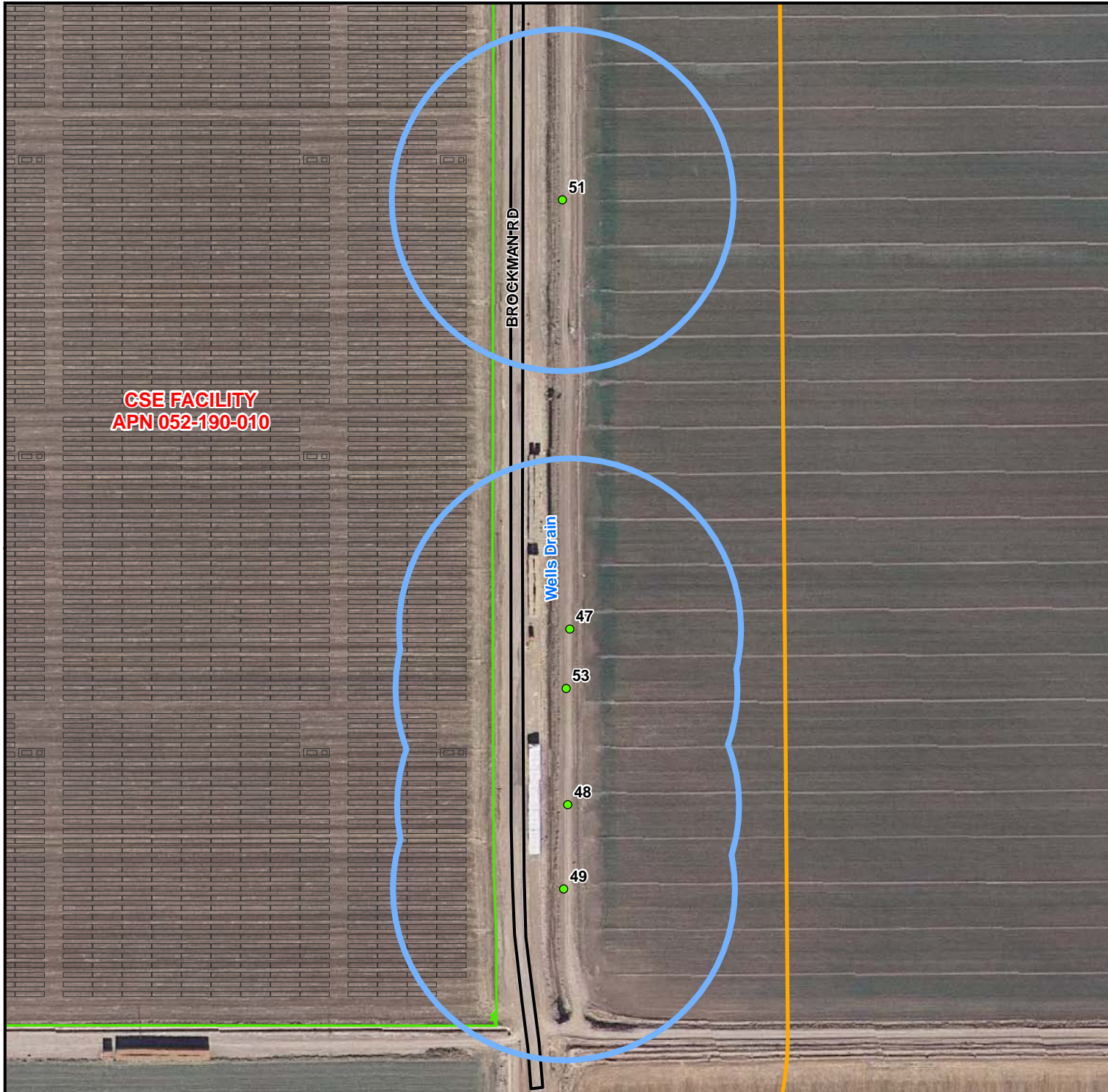
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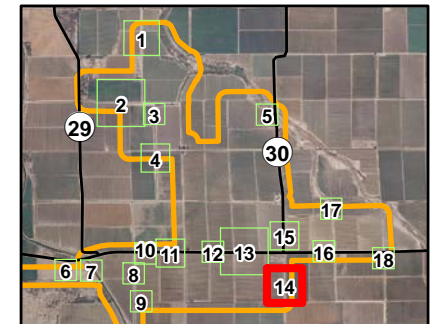
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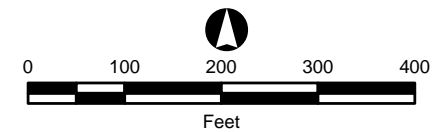
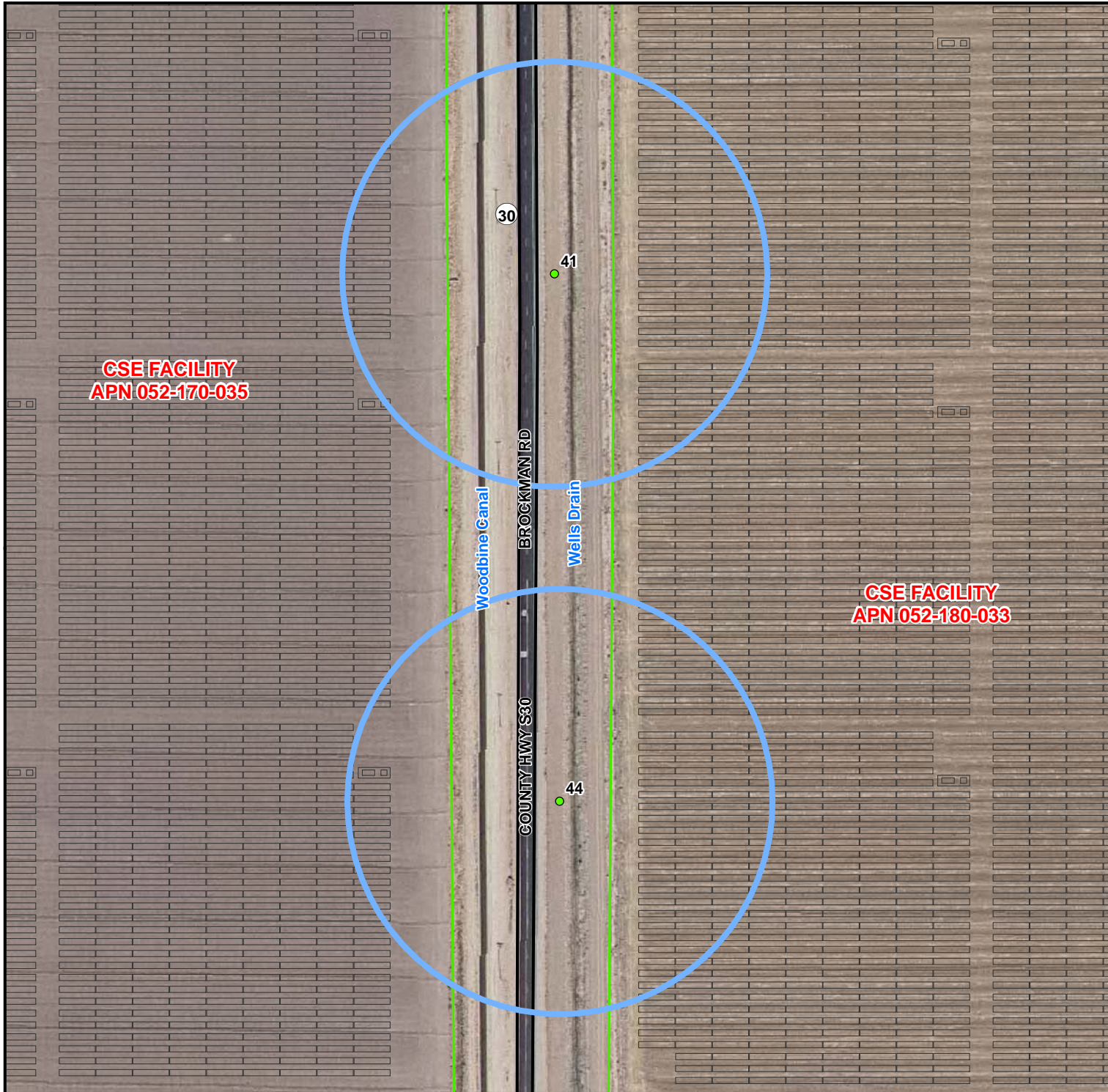
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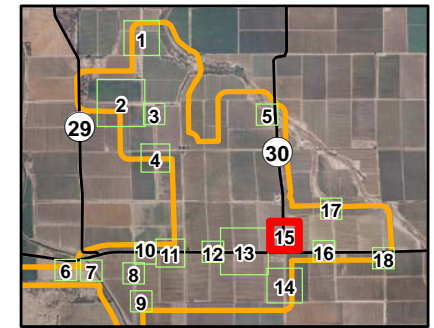
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Burrowing Owl
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





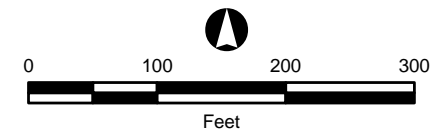
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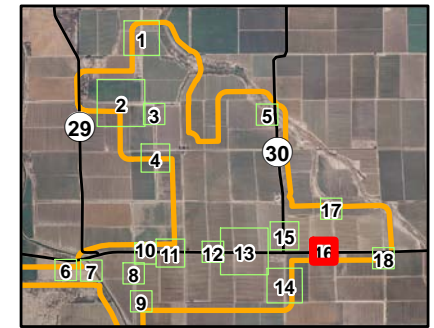
**Attachment 3
Burrowing Owl
Active Burrows**

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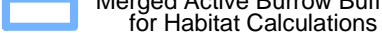





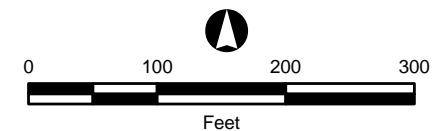
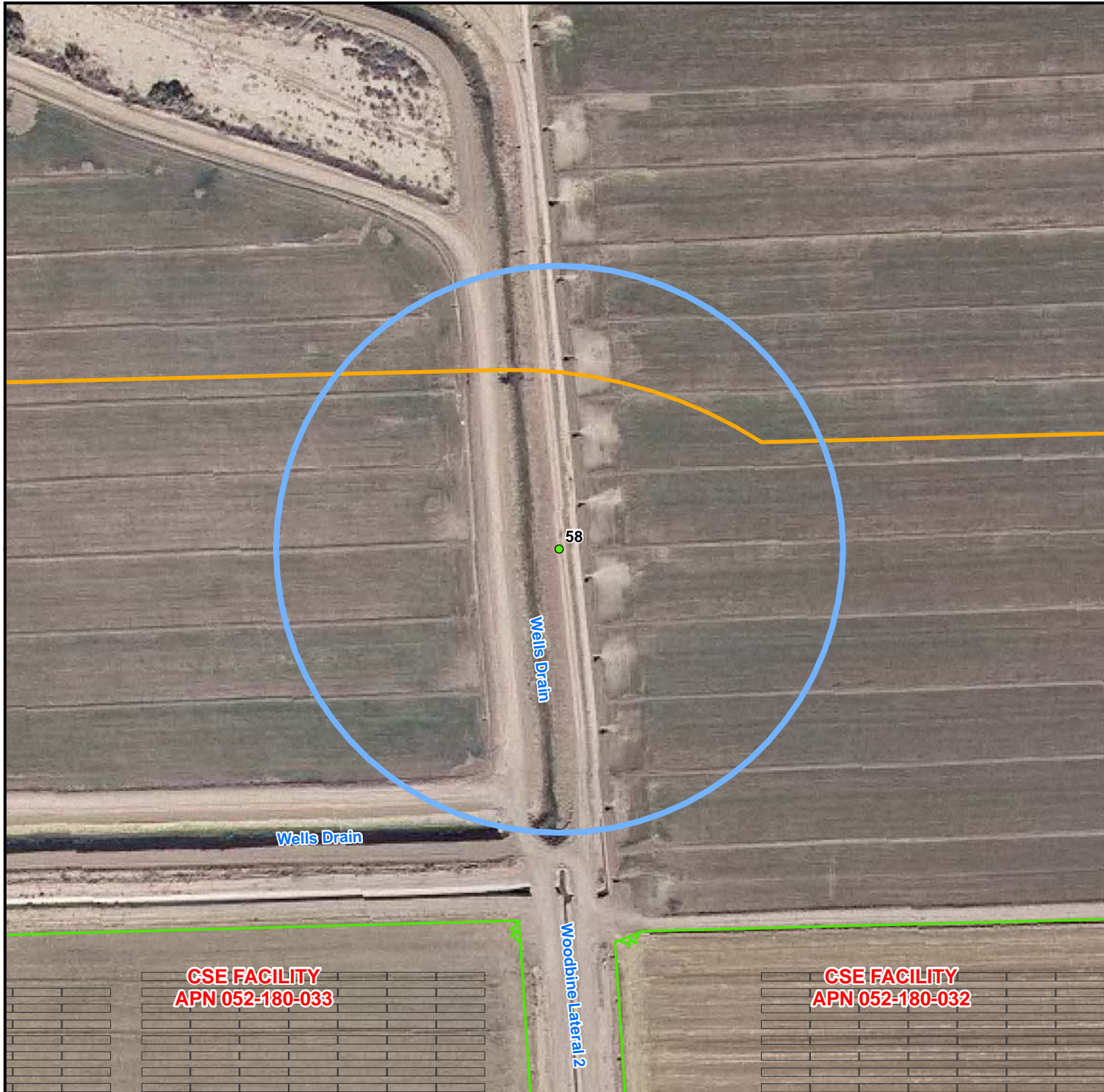
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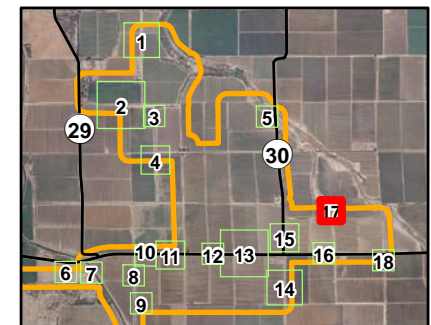
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Burrowing Owl
Active Burrows**

Legend

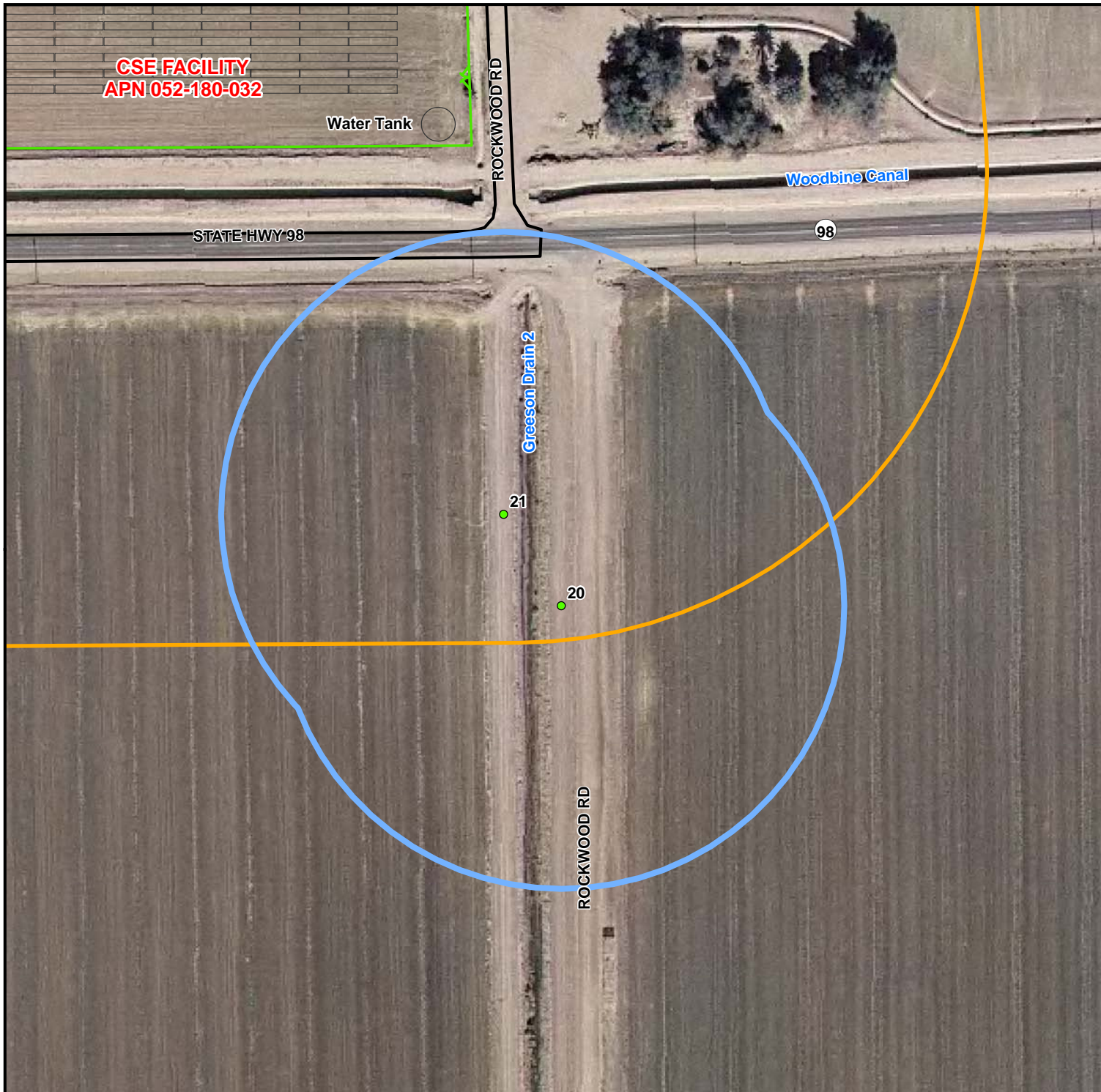
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State Plane Coordinate System
California Zone 6
Feet



Attachment 3
Burrowing Owl
Active Burrows



CSE FACILITY
APN 052-180-032

Water Tank

ROCKWOOD RD

Woodbine Canal

98

STATE HWY 98

Crescon Drain 2

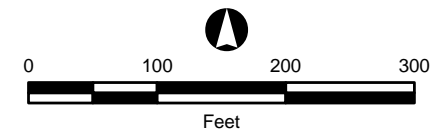
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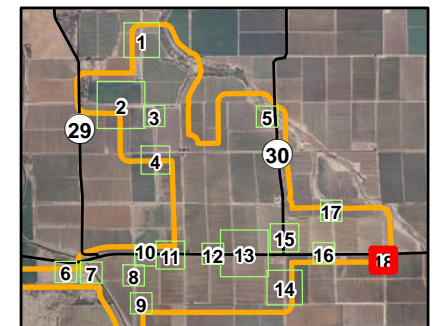
ROCKWOOD RD

Legend

- Active Burrow within CSE Facility 500-Foot Buffer
- Alternative 3 Gen-tie Line Structure
- Alternative 3 Gen-tie Line Route
- Fenceline
- Merged Active Burrow Buffers for Habitat Calculations
- ▭ Existing Road
- ▭ CSE Project Component
- ▭ CSE Facility 500-Foot Buffer



State Plane Coordinate System
California Zone 6
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Attachment 5 - Burrowing Owl Mitigation Acreage Whitepaper

Burrowing Owl Mitigation Acreage Whitepaper

This document is intended to provide an explanation of the scientific basis for a refined Burrowing Owl (BUOW) mitigation acreage calculation method. This calculation method was presented to the California Department of Fish and Game (CDFG) in the Centinela Solar Energy, LLC [CSE] Burrowing Owl Mitigation Proposal submitted to CDFG in October 2011. This refined method is derived from recommendations contained within the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995), a literature review, and site-specific data.

CDFG's typical practice has been that impacts to suitable BUOW foraging habitat within 100 meters of an occupied burrow are mitigated via compensatory land preservation:

“To offset the loss of foraging habitat on the project site, a minimum of 6.5 acres of foraging habitat (calculated on a 100 m {approx. 300 ft.} foraging radius around the burrow) per pair or unpaired resident bird, should be acquired and permanently protected.” (CDFG 1995)

While CDFG does not provide a scientific or biological basis for the use of a 100 m radius or the preservation of this amount of habitat (CDFG 1995), a thorough review of the literature suggests that the 100 m radius is not based upon BUOW home-range or distance to foraging areas, but instead reflects a “core area” surrounding each nest.

BUOW home-range estimates are highly variable and range from 0.049 to 4.81 km² (Poulin et al. 2011). In agro-ecosystems in California, including the Imperial Valley, the majority of foraging (80%) occurs within 600 m of the focal burrow (Rosenberg and Haley 2004, Gervais et al. 2003). Clearly, the CDFG (1995) mitigation guidelines (which specify mitigation for a 100 m radius – approximately 0.031 km²) are not intended to offset the loss of an entire home-range.

The BUOW is a semi-colonial nester; intra-colonial nearest-neighbor distances between active nests are reported to vary from <14 m to 900 m (Poulin et al. 2011). In the Imperial Valley, active burrows have been observed within 10 m of each other (Heritage unpub. data). BUOWs maintain a “Type B” territory (Hinde 1956), defending only the area immediately surrounding the nest; foraging areas overlap, sometimes extensively (Poulin et al. 2011; Rosenberg and Haley 2004; Heritage unpub. data).

Overlapping of foraging areas appears to be more common in agricultural landscapes as a result of greater prey availability in these habitats (Moulten et al. 2006). BUOW densities reported from the Imperial Valley appear to be some of the highest known for this species (DeSante et al. 2004, Rosenberg and Haley 2004), indicating either highly suitable foraging habitat, highly suitable nesting habitat/substrate, or both. Within the CSE BUOW study area, BUOW densities were approximately 3.2 active burrows/km² (Heritage unpub. data). The high densities observed in agro-ecosystems also imply a high degree of overlap in foraging areas. Within agricultural

landscapes, burrow availability and suitable substrate for burrow creation (e.g. irrigation berms), may also influence BUOW nest locations at a finer spatial scale (Bartok and Conway 2010).

Because of the semi-colonial nature of the species (Poulin et al. 2011), as well as the high degree of overlap reported in the literature (Poulin et al. 2011, DeSante et al. 2004, Rosenberg and Haley 2004) and observed within the CSE study area (Heritage 2011), CSE calculated mitigation requirements at the scale of the “colony” rather than for each burrow individually. Mitigation acreages were based on the area within 100 m of active burrows without counting areas of overlap twice. Put differently, if the 100 m radii around two or more burrows overlapped, the radii were merged to create a single polygon and the combined mitigation acreage for the clustered burrows was based on the area of that polygon. Mitigation acreage for isolated burrows (i.e., at least 100 m from a neighboring burrow) were calculated using the entire 100 m radius. This method was employed to account for the high densities and high degree of overlapping foraging areas reported for agro-ecosystems, especially the Imperial Valley. This methodology also better reflects the well-documented semi-colonial nature of the species by accounting for the loss of foraging habitat at the scale of the “colony” rather than the individual burrow.

Literature Cited

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<http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/061doi:10.2173/bna.61>.

Rosenberg, D. K. and K. L. Haley. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. *Studies in Avian Biology* 26: 120-135.

Attachment 6 - REAT Cost Table

REAT¹ Biological Resource Compensation/Mitigation Cost Estimate² Breakdown
September 14, 2010

The purpose of this table is to describe estimated costs that may be associated with implementing off-site biological mitigation/compensation required by one or more of the REAT agencies.

	Task	Cost
1.	Land Acquisition	\$1000 per acre ³
2.	Level 1 Environmental Site Assessment	\$3000 per parcel ⁴
3.	Appraisal	\$5000 per parcel ⁴
4.	Initial site work - clean-up, enhancement, restoration	\$250 per acre
5.	Closing and Escrow Costs – 2 transactions at \$2500 each; landowner to 3 rd party and 3 rd party to agency ⁵	\$5000 for 2 transactions
6.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels....	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead) ⁶
	<i>SUBTOTAL for Acquisition & Initial Site Work for Permittee-Directed and REAT-NFWF MOA Options</i>	\$
7.	Long-term Management and Maintenance (LTMM) - includes land management; enforcement and defense of easement or title [short and long term]; region-wide raven management; monitoring....	\$1450 per acre ⁷
	REAT-NFWF MOA Mitigation Account Additions <i>[only applicable if the REAT Mitigation Account is used for all or a portion of the mitigation]</i>	
8.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	\$5000 per parcel ⁴

1 Not all costs will apply to all REAT agency requirements. For example, some of the elements in this table are not intended to be used as a basis for prescribing security to meet obligations under the California Endangered Species Act.

2 All costs are best estimates as of summer 2010. This cost estimate table will be updated once per quarter, at a minimum. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation (MOA V.I.).

3 Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18-24 month window to acquire the land after agency decisions are made. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.

4 Parcel sizes may range from 1 acre to over 640 acres, plus. The 40 acre estimate is used for illustration purposes only. The general location of the land acquisition(s) will determine the generalized parcel size for determining project specific estimates.

5 Two transactions at \$2500 each: landowner to 3rd party; 3rd party to agency. The transactions will likely be separated in time. State agencies may or may not require this funding.

6 Always required for Federal agency donations. State agencies may or may not require cost to accept donations. SB 34 projects do not have to pay this fee

7 Estimate for purposes of calculating general costs. The general location and parcel size(s) of the land acquisition may also factor into the estimate. The actual long term management and maintenance costs will be determined using a Property Analysis Report (PAR) or a PAR-like assessment tailored to the specific acquisition.

9.	3 rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire....	10% of land acquisition cost (#1)
10.	Establish the project specific sub-account ⁸	\$12,000
11.	Pre-proposal Modified RFP or RFP processing ⁹	\$30,000
12.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL, & Tasks #8, #9
13.	NFWF management fee for LTMM	1% of LTMM
<i>TOTAL for deposit into the REAT-NFWF MOA Project Specific Mitigation Sub-Account</i>		\$

8 Each renewable energy project will be a separate sub-account within the REAT-NFWF account, regardless of the number of required mitigation actions per project. If a project and its mitigation are phased, this fee is only applied when the project specific account is established and not charged again when additional funds are deposited with subsequent phases.

9 If determined necessary by the REAT agencies if multiple 3rd parties have expressed interest; for transparency and objective selection of 3rd party to carryout acquisition.

Attachment 7 - Maintenance Procedures for Artificial Burrow Areas

Maintenance Procedures for Artificial Burrow Areas

The following maintenance and monitoring procedures will be implemented in CSE-owned parcels adjacent to the CSE Facility where artificial BUOW burrows are constructed, subject to any valid existing rights or easements (e.g., IID maintenance of drains and canals). These procedures do not apply to CSE's offsite or BUOW mitigation/preservation lands, where the applicable provisions of the protective easements will govern.

MANAGEMENT. The management procedures listed in this subsection will apply throughout the life of the CSE Facility. The following activities will not be conducted by CSE within CSE's undeveloped lands outside the CSE Facility fenceline in proximity to artificial BUOW burrows (i.e., within 165 feet (50 meters) of an artificial burrow), unless prior authorization is obtained from CDFG:

- Livestock grazing
- Burning
- Installation of solar panels

Within such areas, vegetation growth will be controlled by mowing or other mechanical means (weed whipping, hand removal, etc.) at least annually or as frequently as needed to maintain vegetation height less than two (2) feet in proximity to artificial BUOW burrows in order to maintain adequate lines of sight around the burrows. Any herbicide treatments may only be performed by a qualified applicator or a licensed pest control operator. In the event that exotic/invasive weed infestations develop, such infestations will be eradicated under the direction of the Imperial County Agricultural Commission (ICACO) and or the California Department of Food and Agriculture (CDFA).

MONITORING. A qualified observer who is experienced in detecting weed species reasonably expected to be present in Imperial County (e.g., a licensed pest control advisor or the Designated Biologist) will conduct surveys/monitoring for weed species during construction and operating activities. The purpose of the surveys will be to identify the weed species and occurrence and minimize the potential for effects on the areas in proximity to the artificial BUOW burrows.

The investigation will consist of the qualified observer conducting visual surveys of the artificial burrow areas. Surveys will be conducted once per month for the duration of the Project construction activities and on a quarterly basis for one year following completion of construction. Upon 4 consecutive quarters of reports that indicate no weed infestations have

occurred, the frequency of reporting will then move to an annual basis. Monitoring will continue to occur on this annual schedule and if any infestations of noxious/invasive species are observed, then the frequency of monitoring will return to a quarterly basis until there are 4 consecutive quarters of reporting that indicate no problem species have occurred. Records will be retained for three (3) years after the date of origination