DEER CREEK SOLAR I LLC
DEER CREEK SOLAR I PROJECT
TULARE COUNTY, CALIFORNIA

Initial Study

Prepared for
Deer Creek Solar I LLC

July 2019

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DEER CREEK SOLAR I

Initial Study

1. Project Title:	Deer Creek Solar I
2. Lead Agency Name and Address:	Tulare County Resource Management Agency 5691 S. Mooney Boulevard Visalia, California 93277
3. Contact Person and Phone Number:	Dana Mettlen, Planner III (559) 624-7106
4. Project Location:	The project site is located on 378 acres of private land near the unincorporated community of Terra Bella in unincorporated southwestern Tulare County. Road 224 borders the west side of the property, Avenue 96 to the south, and SR 65/CR35 to the east. Neighboring communities include: Terra Bella (0.5 miles east), Porterville (6 miles northeast), and Ducor (5 miles south).
5. Project Sponsor's Name and Address:	Deer Creek Solar I, LLC Peter Zullo 909 Lake Carolyn Parkway Suite 260 Irving, TX 75039
6. General Plan Designation(s):	Valley Agriculture
7. Zoning:	AE10 (Exclusive Agriculture 10 Acre Minimum) and AE40 (Exclusive Agriculture 40 Acre Minimum).

8. Description of Project:

The proposed Project consists of the construction and operation of a 378-acre, approximately 70 mega-watt (MW) ac photovoltaic (PV) energy generation facility, battery energy storage system and associated infrastructure (e.g., access roads, perimeter fencing, weather station, etc.) on the site described above. The proposed Project would transmit the power generated directly to Southern California Edison's (SCE) 66kV Poplar-Terra Bella line. The power would then be sold to California investor-owned utilities, municipalities, or other purchasers. The Project proponent may eventually choose to decommission and remove all or none of the systems from the site. If the site is decommissioned (see Section 6.1), it would be properly reclaimed as an agricultural use or converted to another use consistent with the applicable land use regulations in effect at that time. If the site is not decommissioned, it is assumed that it will continue in use as a solar facility which will likely require processing for approval under subsequent CEQA review and SUP document. Refer to Chapter 1, Project Description for further details.

9. Surrounding Land Uses and Setting:

Surrounding land uses are predominantly agricultural lands and, ag-related facilities. Rural residences border the western edge of the Project site. There are a few scattered rural residences in the vicinity of the Project site. Deer Creek and Deer Creek Ditch are located just north of the Project site.

10. Other public agencies whose approval is required:

Responsible Agencies: County of Tulare, Central Valley Regional Water Quality Control Board, San Joaquin Valley Unified Air Pollution Control District

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc?

A search of the California Historical Resources Information System (CHRIS) was requested and the results, dated October 10, 2017, indicated that there had been three (3) reports and one (1) historical resource was recorded within the Project area. A Sacred Lands File (SLF) search by the Native American Heritage Commission (NAHC) was requested on September 27, 2017. The NAHC responded on October 10, 2017, indicating that the SLF returned with negative results. Pursuant to AB 52, on February 28, 2018, Tulare County Resource Management Agency (RMA) staff sent notices to twelve (12) Native American Tribal representatives, representing six (6) Tribes, providing information on the Project, a map, and an invitation to consult on the Project. None of these Tribes responded requesting consultation within the mandatory 30-day response time-frames. County RMA staff followed up with the Tribes via email on April 18, 2019. One Tribe replied on April 19, 2019, requesting consultation with the County. In response, County staff provided the Tribe with a summary of the SLF and CHRIS search results. Mitigation measures, which include a condition that the Tribe specifically be contacted in the event of accidental discovery of resources, have been incorporated into the Project to reduce potential impacts as a result of potential future discovery of Native American tribal cultural resources.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature — Date 8/1/19

Hector Guerra, Chief Environmental Planner

Signature — Date 8.1.19

Reed Schenke P.E., Environmental Assessment Officer
RMA Director

CHAPTER I
Project Description

1.1 Introduction

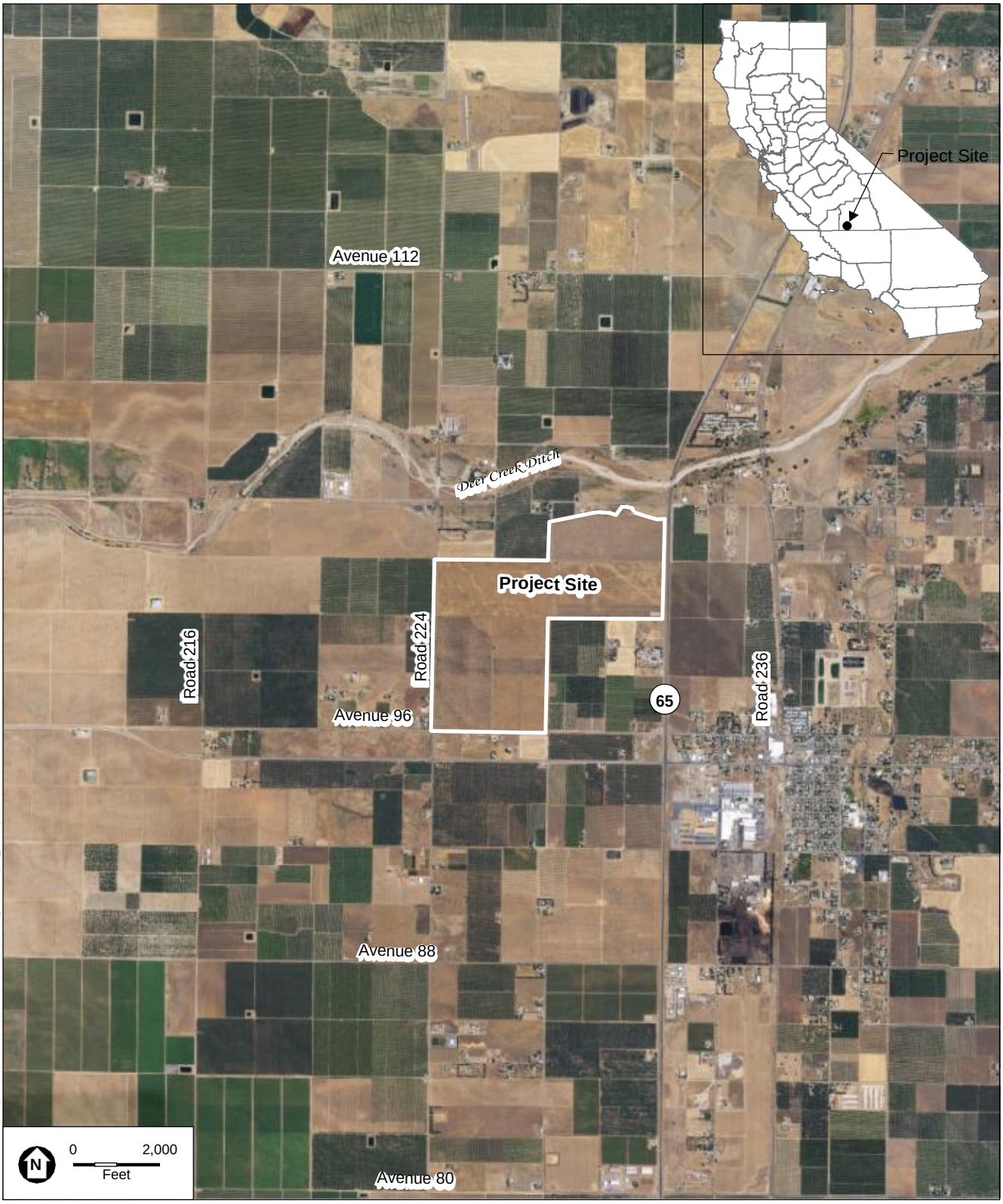
Deer Creek Solar I LLC (the Applicant) proposes to construct, operate, maintain, and decommission the Deer Creek Solar I Project (Project) on a 378-acre site on private lands in unincorporated southwest Tulare County. The Project facilities would include an up to 70 mega-watt (MW) photovoltaic (PV) solar generation facility, including a battery storage system, solar PV tracking units, inverters, substation, meteorological station, electrical equipment, an unmanned operations and maintenance facility, and associated infrastructure.

1.2 Project Location and Setting

As shown on **Figure 1**, the Project site is located near the unincorporated community of Terra Bella in unincorporated southwestern Tulare County. Road 224 borders the west side of the property, Avenue 96 is to the south, and Highway 65/CR35 to the east. Neighboring unincorporated communities of Terra Bella (0.5 miles east), Ducor (approximately 5 miles south) and Poplar-Cotton Center (approximately 7 miles northwest); the City of Porterville is approximately 6.4 miles northeast.

Surrounding land uses are predominantly agricultural and agricultural related facilities. Scattered, rural residences are located near the Project site, west of Road 224, and Terra Bella Avenue to the south. Currently, there are two proposed utility scale solar projects located approximately 12 miles south of the project site. The SR Solis Project is a 40 MW PV facility on 292 acres and the Tulare Solar Center is an 80 MW solar PV facility on 1,144 acres. The Porterville Municipal Airport is located approximately four miles north of the Project site.

The Project site is currently optioned for lease by the parent company of Deer Creek Solar I LLC (Lendlease Energy Development LLC) for a period of up to 34 years and 11 months. The land is currently under the ownership of a family trust. Land use within the Project site currently consists of agricultural lands used for growing oat hay and wheat. An abandoned orchard also exists on a portion of the Project site.



Path: U:\GIS\GIS\Projects\17xxxx\D170464 - Lendlease Solar\Figure 1 Project_Vicinity.mxd, rt 10/13/2017

SOURCE:ESRI Imagery; ESA

Deer Creek Solar

Figure 1
Project Location

ESA

The Project site is included in the area covered by the Tulare County General Plan (County of Tulare, 2012). The site is zoned as AE-40, or "Exclusive Agricultural 40 Acre Minimum" and AE-10, "Exclusive Agriculture 10 Acre Minimum" as designated by the Tulare County Zoning Ordinance (County of Tulare Zoning). Both Project parcels fall under Williamson Act contracts. Approximately 20.3 acres of the Project site is designated "Prime Farmland" by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP, 2017), 129.5 acres are designated "Farmland of Statewide Importance," and 223.2 acres are designated "Farmland of Local Importance."

1.3 Project Components

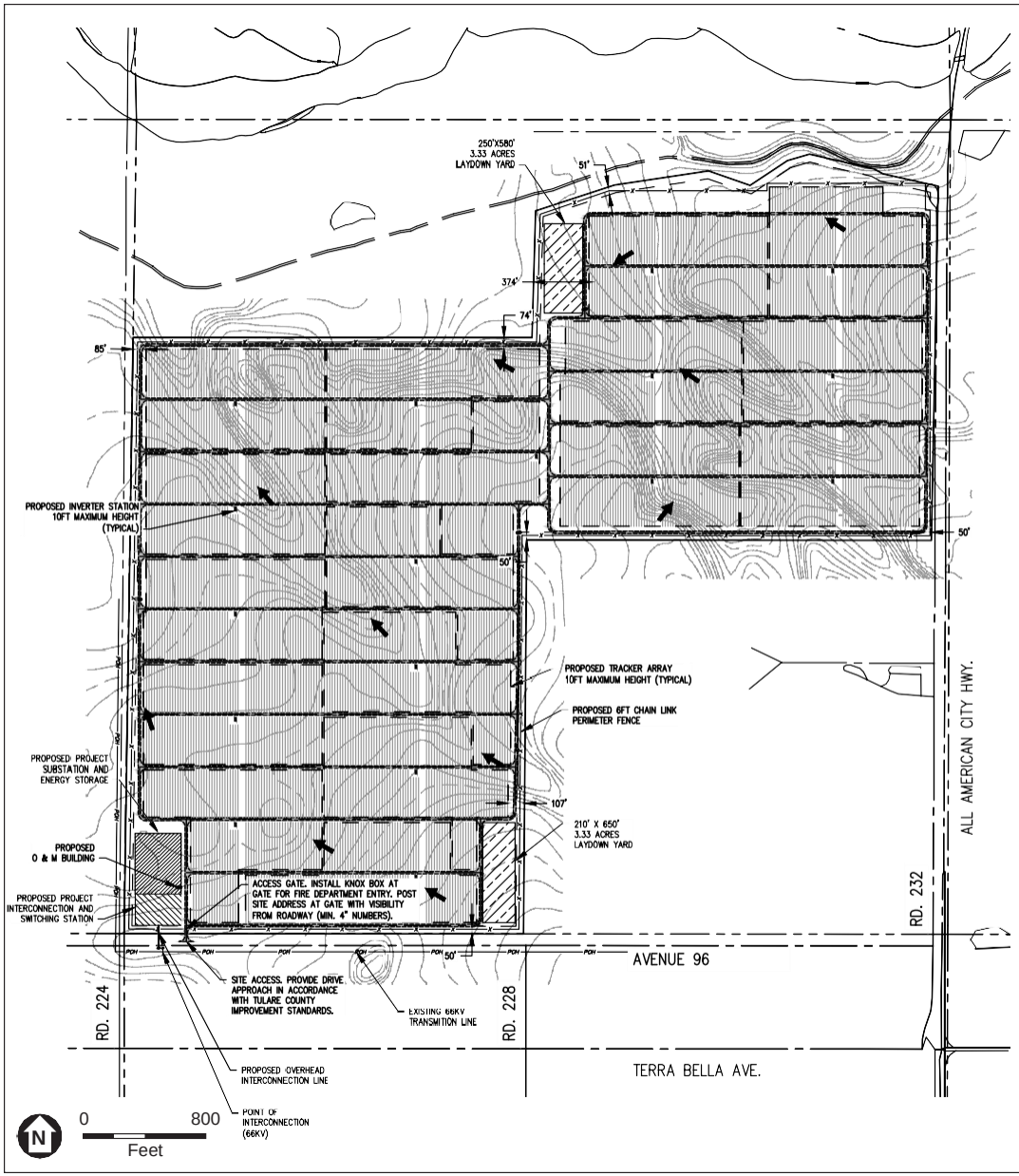
The proposed Project includes the development of an up to 70 MW alternating current (ac) PV energy generation facility, battery energy storage system, and associated infrastructure. Market conditions will determine the Project's specific photovoltaic energy generation and battery energy storage technology once the entitlement process draws to a conclusion and the construction start date is set.

The solar PV generating facility would consist of modules arranged in a grid pattern of solar arrays installed on single axis tracking structures mounted to vertical posts. The proposed solar facility is intended to operate year-round, and would generate electricity during daylight hours. The battery energy storage facility would augment energy delivery as called upon. The proposed Project site plan is shown on **Figure 2**.

The proposed Project would transmit the power generated at the site via a new on-site Project substation and a new SCE-owned substation, which would connect to SCE's 66kV Poplar-Terra Bella line approximately 60 feet south of the Project site. The power would then be sold to California investor-owned utilities, municipalities, or other purchasers in furtherance of the goals of the California Renewables Portfolio Standard (RPS) and other similar renewable programs in the State. The Project proponent would likely decommission and remove all or none of the systems from the site, as outlined in Section 1.6. If the site is decommissioned, it would be converted to another use consistent with the applicable land use regulations in effect at that time. If the site is not decommissioned, it is assumed that it will continue in use as a solar facility, which may be subject to subsequent CEQA review and amendment of the SUP.

1.3.1 Photovoltaic Panels

The Project would primarily consist of PV module arrays that would generate electricity directly from sunlight. Each module, or solar panel, could measure from 44 inches to 75 inches long and from 22 inches to 44 inches wide, depending upon final module selection. The layout of the single axis tracker solar panels would be aligned in rows in the north-south direction. The rows would move throughout the day, tracking the sun from east to west to maximize electricity generation by directly facing the PV modules to the sun. The maximum height of the single axis tracker solar panels would be up to 12 feet above grade at the beginning and end of each day.



LEGAL DESCRIPTION

PARCEL 1 (APN: 302-230-013-000)
THE SOUTH HALF OF THE NORTH HALF AND THE NORTH HALF OF THE NORTHEAST QUARTER OF SECTION 33, TOWNSHIP 22 SOUTH, RANGE 27 EAST, MOUNT DIABLO BASE & MERIDIAN, IN THE COUNTY OF TULARE, STATE OF CALIFORNIA. EXCEPTING THEREFROM THAT PORTION CONVEYED TO J. B. LADRIGAN BY DEED RECORDED MARCH 3, 1943 IN BOOK 1015, PAGE 418 OF OFFICIAL RECORDS DESCRIBED AS FOLLOWS:

BEGINNING A" THE NORTHEAST CORN:R OF SAID SECTION 33; THENCE SOUTH 0° 04 WEST ALONG AS" NF SAID SECTION, 289 FEET,
THENCE SOUTH 83[redacted]
THENCE NORTH 74° 51 W.ST, 37[redacted]
THENCE NORTH 51° 53 W.ST, 18[redacted]
THENCE NORTH 82° 18 W.ST, 12[redacted]
TH:NC: SOUTH 63° 23 W.ST, 10[redacted]
HENCE SOUTH 46° 32 W.ST, 23[redacted]
TH:NC: NORTH 82° 18 W.ST, 30[redacted]
HENCE NORTH 87° 09 WEST, 16[redacted]
THENCE SOUTH 75° 59 W.ST, 63[redacted]
THENCE SOUTH 72° 52 W.ST, 12[redacted]
HENCE SOUTH 78° 15 W.ST, 150[redacted]
THENCE SOUTH 74° [redacted]ST, 155[redacted] TO A POINT ON THE WEST LINE OF SAID NORTH HALF O- THE NORTHEAST QUARTER OF SECTION 33;
THENCE NORTH 0° 08 EAST ALONG THE WEST LINE OF SAID NORTH HALF OF THE NORTHEAST QUARTER, 475.35 FEET TO THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER OF SECTION 33;
THENCE NORTH 89° 57 EAST, ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER, 2623.6 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

ALSO EXCEPTING 25% ROYALTY IN AND TO ANY OIL AND/OR MINERALS AS RESERVED BY ILA R. HUGHES AND CHARLES E. HUGHES, HER HUSBAND, IN DEED DATED JUNE 23, 1952 AND RECORDED MAY 7, 1963 IN BOOK 2416, PAGE 665 OF OFFICIAL RECORDS.

ALSO EXCEPTING 25% ROYALTY IN AND TO ANY OIL AND/OR MINERALS AS RESERVED BY LINCOLN V. HENDERSON AND MARGARET HENDERSON, HUSBAND AND WIFE, AND H. E. CAMPBELL AND ANNABELLE CAMPBELL, HUSBAND AND WIFE, IN DEED DATED FEBRUARY 10, 1956 AND RECORDED MAY 7, E963 IN BOOK 2416, PAGE 666 OF OFFICIAL RECORDS.

PARCEL 2 (APN: 302-460-003 -000)
THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 22 SOUTH, RANGE 27 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF TULARE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PROPOSED ACCESS ROADS

ACCESS ROADS WILL BE 20' WIDE WITH A 13' 16" VERTICAL CLEARANCE. ACCESS ROADS WILL HAVE AN ALL-WEATHER SURFACE. NO PORTION OF THE PHOTOVOLTAIC ARRAY WILL BE FURTHER THAN 155' FROM AN ACCESS ROAD.

PROPOSED STREET IMPROVEMENTS

NO PUBLIC STREET IMPROVEMENTS ARE PLANNED.

LEGEND

- EXISTING ROAD CENTERLINE
- EXISTING SECTION LINE
- EXISTING NATIONAL WETLAND INDEX LINE
- PROPOSED PROJECT BOUNDARY LINE
- PROPOSED PROJECT SETBACK LINE
- PROPOSED INVERTER ARRAY BOUNDARY LINE
- PROPOSED PROJECT FENCE
- PROPOSED INVERTER STATION
- PROPOSED TRACKER RACK
- 1000 EXISTING 5' CONTOURS
- 999 EXISTING 1' CONTOURS
- FLOW DIRECTIONAL ARROWS

PAVING

FOR ACCESS ROADS ALL INSIDE TURNING RADII ARE 30' AND OUTSIDE TURNING RADIUS ARE 50'.

SIGNAGE

STREET SIGNS WILL BE PROVIDED PER LOCAL REQUIREMENTS.

PER FIRE DEPARTMENT, A SIGN SHALL BE POSTED OUTSIDE THE BATTERY STORAGE BUILDING AREA WITH A PLAN OF THE AREA AND MASTER SHUTDOWN PROCEDURES. FINAL DESIGN OF SIGN TO BE DETERMINED PRIOR TO CONSTRUCTION.

A SIGN WITH THE SITE ADDRESS SHALL BE POSTED AT THE PROJECT GATE. ADDRESS SHALL BE VISIBLE FROM ROADWAY, USING MINIMUM 4" NUMBERS.

LIGHTING

LIGHTING WILL CONSIST OF SMALL FIXTURES MOUNTED AT THE ENTRANCE AND INVERTER STATIONS.

PARKING SPACE ANALYSIS

BASIS OF REQUIREMENT	PARKING CALC	BLD SIZE/CALC	REQUIRED	PROVIDED
UNMANNED		0	0	0
		TOTAL	0	0

BASIS COVERAGE	ACREAGE	% OF PROJECT
TOTAL AREA	371.24	100%
IMPERVIOUS SURFACE	25.47	6.8%
LANDSCAPING	0	0%

Contact	Company	Name	Contact #
APPLICANT	Lendlease Energy Development, LLC 909 Lake Carolyn Parkway, Suite 260 Irving, Texas 75039	TREY LOPEZ	972-707-5226
CIVIL ENGINEER	WESTWOOD	CHRIS CARDA	952-906-7459

D170464

SOURCE: Westwood

Deer Creek Solar

Figure 2
Site Plan

ESA

Module layout and spacing is optimized to balance energy production versus peak capacity, and depends on the sun angles and shading of the surrounding horizon of the Project site. The modules would typically be mounted with the longer side oriented east to west across the tracker system's north-south axis. Individual arrays of modules would be combined to generate the total plant capacity. Electricity generated at the arrays would be collected and delivered to the Project substation.

An estimated 200,000-300,000 individual panels would be installed on-site. The total number of modules or panels would depend on the technology selected, an optimized layout, and a detailed design that takes landscape features, drainage considerations, and site maintenance access into account.

The PV modules would be manufactured off-site and transported to the Project site. Although final module design has not been selected, modules would generally be covered with dark, high-light-absorbing, low-reflective glass, and would be mounted on a corrosion-resistant metal racking system.

1.3.2 Electrical Collector System and Inverters

The DC-AC electrical collection system includes all cables and combiners that would collect electricity from the panels or batteries, deliver it to the inverters, collect it from the inverters, and ultimately deliver it to the Project switching station. This collection system would likely be installed along internal access roads to collect power from the rows of modules and deliver it to the switching station. Subsurface trenches would likely be used for the installation of the collection system. This collection system would likely be installed in subsurface trenches, though in some areas of the site, part of the collection system may be housed in above-grade raceways mounted on supports approximately 24-36 inches above ground level. The collection system would be rated at between 1,000-2,000 volts DC until it reached the inverters and a 34.5 kV AC intermediate voltage system between the inverters and the Project switching station.

The DC electricity produced by the solar panels or batteries would be converted to three-phase alternating current by inverters. The facility would require up to 70 inverters. Alternating current is the type of electricity usable by the electric utility and is the form required to connect to the transmission system. The inverter pad equipment includes a transformer that steps up the electricity in its new form to an output voltage of approximately 34.5 kV. This electricity would then be transmitted via the medium voltage collection system to the Project substation.

The Project would use a typical unmanned field control system. The controls for this type of system generally include an automated field supervisory controller in a central location and local microprocessor controllers connected to each tracker. The field control system monitors solar insolation, wind velocity, tracker performance and status, and communicates with the local microprocessor controllers. When the appropriate conditions exist, the automated field supervisory controller initiates the trackers' daily tracking of the sun, and at the end of the day, stows the trackers in the solar array.

1.3.3 Tracker Unit

The single axis tracker solar panels would be aligned in rows in the north-south direction. A solar tracking mechanism is used to maximize the solar energy conversion efficiency by keeping the modules perpendicular to the sun's energy rays throughout the day. This completed assembly of PV modules mounted on a framework structure is called a "tracker" because it tracks the sun from east to west. Single-axis tracking arrays are more efficient at producing energy than fixed tilt systems.

There are two types of tracker systems that may be selected for the proposed Project: a centralized system or a decentralized system. A centralized tracker system uses one motor to control multiple rows of PV modules through a series of mechanical linkages and/or gearboxes. A decentralized system utilizes a single motor and/or gearbox for each row of PV modules. The exact tracker manufacturer and model would be determined in the final design. All trackers are intended to function identically to maximize solar exposure on-site. The spacing between the rows of trackers is dependent on site-specific features and would be identified in the final design. The final configuration would allow for sufficient clearance for maintenance vehicles and panel access.

1.3.4 On-site Substation

The Project would include a new on-site SCE owned substation and developer owned substation, adjacent to each other in southwest corner of the Project site. The construction of the substation would include the following associated infrastructure: A 66kV step-up transformer, box rack structure and foundations, circuit breakers, disconnect switches, overhead conductors and insulators, wood or steel transmission poles, perimeter barbed wire fences, an 18-foot-tall mechanical electrical equipment room (approximately 30 feet by 20 feet), telecommunication equipment, bus-work, potential transformers with steel pedestal support structures, and a grounding grid. The substation would be located in the southwest corner of the Project site (see Figure 2). The 18-foot-tall substation would be approximately 450 feet by 450 feet. The substation will likely have a shield wire to protect the substation from lighting strikes. This wire would be up to 70 feet tall. The substation would collect the medium voltage circuits that carry power from the solar facilities and would contain metering equipment, switchgear, a series of fuses and circuit breakers that act as protective relays, as well as a transformer to step-up the voltage to match the voltage of the local transmission grid. The substation may also house the battery storage facility. Alternatively, batteries may be distributed throughout the site as described in Section 1.3.8.

1.3.5 Electrical Interconnection

The Project would require the construction of an approximately 60-foot-long overhead crossing of Avenue 96 to connect the SCE-owned substation with SCE's existing 66 kV Terra Bella line. The 66 kV poles would be up to 70 feet tall. The design for the new overhead line would follow the most recent Avian Power Line Interaction Committee guidance, currently 2012, to reduce the potential for avian injury and mortality from collisions (APLIC, 2012) and electrocution (APLIC, 2006). Such guidance is considered standard in the industry to prevent bird mortality from transmission facilities, and to prevent associated power outages.

1.3.6 Operation and Maintenance Facility

The Project also would include an approximately 18-foot-tall unmanned operation and maintenance (O&M) building measuring approximately 30 feet by 35 feet, an 18-foot-tall single-story unmanned communications building measuring approximately 30 feet by 35 feet, and two laydown yards. The O&M building would include storage space for spare parts and materials for the day-to-day operation and maintenance of the facility. Communications would be provided by the local utility. Bottled water would be provided for maintenance crews during on-site activities.

Maintenance personnel are anticipated to visit the site several times per year for routine maintenance and to wash the PV modules up to four times a year. Project traffic volumes are anticipated to be minimal during operation of the facility. During the majority of Project operation, the Project would be unmanned. During panel washing (expected to occur up to four times per year for up to 40 days at a time), as many as 10 one-way vehicle trips per day would be generated.

1.3.7 Meteorological Data Collection System

The Project would include a meteorological data collection system (weather station). The equipment would be approximately 9 feet tall and 6 feet wide. Various sensors at the station would measure three different types of solar radiation, wind speed, wind direction, temperature, humidity, and precipitation. Data from each sensor would be collected by the station's data-logger, as well as transmitted to the Project's supervisory control and data acquisition (SCADA) system for monitoring and reporting purposes.

A mobile weather station mounted on a small, flatbed trailer would likely be installed during the Project development phase. This mobile version of the station would be replaced by a permanent, ground-mounted version during Project construction.

The Project would include an on-site solar meteorological station located near the O&M building, which would consist of solar energy (irradiance) meters, as well as an air temperature sensor and wind anemometer.

The SCADA system would allow remote monitoring of the Project's operation, as well as remote operation of its critical control components. Access to the Project's SCADA system would be accomplished with wireless and/or hard-wired connections to locally available commercial service providers, i.e., a Local Exchange Carrier.

1.3.8 Energy Storage Facility

Battery Energy Storage Systems (BESS) can assist grid operators in more effectively integrating intermittent renewable resources into the statewide grid and can assist utilities in their efforts to meet energy storage goals mandated by the California Public Utilities Commission. An energy storage facility with a 4-hour discharge duration of up to 70 MW in size would be constructed on the Project site. The BESS would be composed of battery storage modules placed in multiple prefabricated enclosures (i.e., standard shipping containers [approximately 40 feet long, 8 feet wide, and 8 feet tall]), with added fire suppression and climate control measures built-in, that would be distributed across the Project site on the inverter pads. Approximately 20 containers (resulting in a cumulative total of 6,400 square feet) would be utilized for 70 MW of storage. Alternatively, the battery storage modules could be consolidated (approximately 7,000 total square feet) and installed within a single location on concrete pads adjacent to the on-site substation. The Project could use any commercially available battery technology but is anticipated to use utility-grade lithium-ion batteries.

1.3.9 Site Access and Security

The Project would be accessed from Avenue 96. Site access (developed to County of Tulare Standards) would be approximately 20 feet wide, accommodating 56-foot turning radii in both directions. Access roads would be developed for ingress and egress to the Project site, to individual Project components, and between the solar array rows to facilitate installation, maintenance, and cleaning of the solar panels.

Internal access roads running from the site entrance to the individual facilities would be graveled. Approximately 4 to 8 inches of Class 2 aggregate base would be added and compacted. The roads providing access to the inverter equipment pads would be 12-feet wide, sufficient for California Department of Forest and Fire Protection (CALFIRE) access. The 12-foot wide perimeter roads would: (i) provide a fire buffer, (ii) accommodate Project O&M activities, and (iii) facilitate on-site circulation for emergency vehicles.

Additional access roads providing access to PV arrays for O&M activities would be comprised of compacted earth. For these roads, the ground would be grubbed (cleared of vegetation), scarified (loosened up), moisture conditioned, compacted, and graded with a crown in the center and a swale on each side.

During decommissioning of the facility, it is anticipated that the access roads would be used for removal of the facility components.

1.3.10 Lighting

The Project's lighting system would provide O&M personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Lighting would be directed downward and shielded to focus illumination on the desired areas only and to avoid light spillage on adjacent properties. Light fixtures would be mounted at the entrance and each inverter station. Lighting would be no brighter than required to meet safety and security requirements, and lamp fixtures and lumens would be selected accordingly. All Project lighting would be switched and without timers. Motion detectors would be installed on all lights except the main site entrance.

1.3.11 Security and Safety

As necessary for public safety and site security, chain-link security fencing would be installed around the site perimeter, switchyard, substation, and other areas requiring controlled access, in order to restrict public access during construction-related activities and operation. The security fence would be approximately 6-8 feet tall with a string of barbed wire along the top and the first rung raised 4 to 7 inches from the ground to allow free movement of small wildlife species across the Project site. Alternatively, standard deer fencing installed with the larger openings at the bottom may also be used. Because the larger openings measure four inches or greater, there is no need to lift the fencing material off the ground. The fence posts would be set in concrete. Additional security may be provided through the use of closed circuit video surveillance cameras and intrusion systems.

Signage for safety and identification would be posted around the perimeter of the Project site. Signs would be installed to achieve appropriate safety and security typical of a solar power facility. Proposed signage

includes signs specifying high voltage danger, site under surveillance, caution electric shock, etc. Any signs as required by the National Electrical Code would also be installed. The Applicant would post all signs required by all jurisdictions with authority.

To limit fire risk, maintenance would include the management and removal, as needed, of combustible vegetation on and around the Project site boundary. The Project site's perimeter roads would also act as fire breaks.

Combustible materials within and around the Project boundary, including vegetation, would be actively managed by O&M personnel to minimize fire risks. Management of vegetation, in combination with the on-site, 12-foot-wide access roads would limit paths of any potential on-site fires.

1.3.12 Storm Water Protection

As the proposed Project would result in disturbance of an area greater than one (1) acre, the Applicant would be required to enroll under the State Construction General Permit for the National Pollution Discharge Elimination System program. To enroll under this permit, the Applicant would prepare a Storm Water Pollution Prevention Plan (SWPPP) that details Project information; monitoring and reporting procedures; and Best Management Practices (BMPs) (such as dewatering procedures, storm water runoff quality control measures, and concrete waste management, as necessary). The SWPPP must include measures to ensure that all pollutants and their sources are controlled; non-storm water discharges are identified and either eliminated, controlled, or treated; site BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges; and BMPs installed to reduce or eliminate pollutants after construction-related activities are completed and maintained. The SWPPP would be based on final engineering design and would include all Project components.

1.4 Project Construction

1.4.1 Schedule and Workforce

The construction-related activities for the proposed Project fall into three main categories: (1) site grading and earthwork; (2) solar array and BESS construction; and (3) electrical interconnection to transmission owner infrastructure. Construction-related activities are assumed to begin in 2020 and be completed over an 11-month period. Construction-related activities would primarily occur during daylight hours, Monday through Friday. Additional hours/days may be necessary to facilitate the schedule. The County of Tulare Planning Department would be notified in the event additional hours/days are necessary to ensure compliance with applicable ordinances, policies, standards, permits, etc. (i.e., observance of noise ordinance, encroachment permits, traffic management plans, etc.).

The construction-related workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The average workforce on site each day is anticipated to be approximately 63 construction-related personnel, including laborers, supervisory, and support staff. The on-site workforce has been conservatively estimated to peak at approximately 90 individuals for short periods of time, which is typically 2-3 weeks. It is anticipated that the construction-related workforce would

commute to the site each day from local communities. Construction-related staff not drawn from the local labor pool would stay in nearby hotels providing a source of revenue for the local economy.

During construction-related activities, dusk-to-dawn security lighting would be required for the construction-related staging areas, parking area, construction office trailer entries, and site access points. Lighting is not planned for typical construction-related activities because such activities would occur primarily during daylight; however, if required, and approved by the County of Tulare, any lighting would be temporary and limited to that needed to ensure safety and security.

Multiple portable toilets would be used during construction-related activities, and wastewater would be trucked off-site for disposal by a licensed sewage disposal company for treatment at a licensed or government wastewater treatment facility as required by the Tulare County Health and Human Services Agency.

1.4.2 Pre-Construction Activities

Pre-construction-related activities would entail site surveying, vegetation clearance, and grading. The Project site would be secured with the installation of chain-link fencing and gates around the site perimeter and staging and laydown areas. Temporary and permanent on-site roadways would be graded and compacted prior to any required road construction.

Site Grading and Earthwork

Site grading and earthwork would involve preparing the land for installation of arrays, battery energy storage, related infrastructure, access driveways, and temporary construction staging areas. Prior to initial construction mobilization, preconstruction surveys would be performed and sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Stabilized construction-related entrance and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways. Also, the Project would comply with applicable San Joaquin Valley Unified Air Pollution control District (Air District) rules and regulations (e.g., Regulation VIII [Fugitive PM10 Prohibitions], Dust Control Plan, etc.) to prevent, reduce, or mitigate anthropogenic fugitive dust emissions from earthmoving activities (e.g., land clearing, grubbing, scraping, travel on site, travel on access roads to and from a site); carryout and trackout (e.g., of soil, dirt, mud, etc.); paved and unpaved roads; unpaved vehicle/equipment traffic areas, bulk materials, etc.

See Section 2.3, Air Quality, for details regarding Regulation VIII rules that would be applicable to the Project.

Site preparation would involve the removal and proper disposal of some existing vegetation and debris that would unduly interfere with Project construction or the health and safety of on-site personnel. Dust minimizing techniques would be employed, such as maintaining natural vegetation where possible, utilizing a "mow-and-roll" vegetation clearance strategy, and application of water sufficient to control dust emissions. Clearing and grading activities will be scheduled and executed to minimize the amount of cleared land during any given week to minimize fugitive dust. This "just in time" approach would stay just ahead of successive construction-related activities. Conventional grading would be minimized to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks,

paddlewheels, haul vehicles and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support for roads bearing equipment. Access roads may be additionally compacted to 90 percent or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate to meet emergency access requirements. Soil movement from grading would be balanced on the site, and it is anticipated that no import or export of soils would occur.

Erosion prevention measures and other best management practices (BMPs) would be implemented during site grading activities. Topsoil would be separated and stockpiled separately from subsoil and stabilized to prevent erosion or entrainment into the atmosphere. When Project construction-related activities are complete, stripped subsoil and topsoil would be replaced as required. Other erosion and sediment control measures would include watering the disturbed site sufficient to control dust emissions and soil compaction during grading and other dust-generating construction-related activities. Erosion control designs for the Project would be prepared by a registered Civil Engineer in conformance with industry standards. The SWPPP would specify the implementation of typical erosion control design measures such as straw wattles, check dams, fabric blankets, and silt fencing. All erosion control materials would be biodegradable and of natural fibers. Grading would be minimized and Project design would maintain the existing topography of the Project site as much as possible to limit erosion potential and maintain existing site drainage patterns.

Project construction-related activities would require temporary staging and storage areas for materials and equipment during the construction process. Construction laydown and staging areas would be located within the Project site and secured by a temporary, free standing chain-link fence for the duration of construction activities. Following construction-related activities, laydown and staging areas would be restored to pre-construction site conditions as closely as feasible.

Trenching would be required for placement of underground electrical and communications lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment and water trucks. After preparation of the site, the pads for structures, equipment enclosures and equipment vaults would be prepared per geotechnical engineer recommendations.

1.4.3 Construction Activities

Solar Array Construction

Erection of the solar arrays would include support structures and associated electrical equipment. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. If shallow bedrock, or other obstructions are encountered, the pile locations would be predrilled and then grouted in place with concrete. Trackers would be mounted on support posts up to 18 feet long. This installation would occur by vibratory post driving, which involves inserting a steel pipe into the ground using a hydraulic vibratory post driver. The piles are typically spaced approximately 10-20 feet apart. Once the piles have been installed, the horizontal array support structures would be installed. The final design of the horizontal array support structures may vary, depending on the final selection of the PV technology. Once the support structures are installed, workers would begin to install the solar modules. Solar array assembly and installation would require trenching machines and excavators, compactors, concrete trucks and pumpers, vibrators, forklifts, boom trucks,

graders, pile drivers, drilling machines, and cranes. Solar PV panels would be shipped to the site ready for installation.

Concrete would be required for the footings, pads for the medium voltage transformers, inverters, O&M building, and communications building. Concrete may also be required for pile foundation support depending on the proposed mounting system chosen for installation and whether or not obstructions are encountered during installation. Final concrete specifications would be determined during detailed design engineering. Concrete pads for the drive motors would be poured using concrete from an off-site local batch plant located within approximately 15 miles of the Project site, and electrical equipment for the array would be set in place. Concrete used in construction-related activities would require approximately 25 total concrete truck deliveries during Project construction-related activities.

During array construction-related activities, there would be multiple crews working on the site, including use of special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the solar switchyard would be constructed and the electrical collection and communication systems would be installed. Within the solar fields, the electrical and communication wiring would be installed in underground trenches, though in some areas of the site, part of the collection system may be housed in above-grade raceways mounted on supports approximately 24-36 inches above ground level. Collection trenches would likely be mechanically excavated, though in some cases targeted shallow trench blasting may be required as a construction technique due to near-surface bedrock. If explosives are to be used, the Applicant would obtain all necessary permits and approvals through the Tulare County Fire Department).

The wiring would connect to the appropriate electrical and communication terminations, circuits would be checked, and electrical service would be verified. Additionally, tracker motors would be checked and control logic verified. Once all of the individual systems have been tested, the overall Project would be ready for testing under fully integrated conditions.

Substation

Construction-related work within the substation footprint would include site preparation and installation of substructures and electrical equipment. The area would be initially cleared and graded and security fenced for the duration of substation construction. Underground Service Alert would be contacted to mark the locations of existing buried utilities in the vicinity. The substation would be constructed with conventional grading and construction-related equipment; grading would be minimal as would minor excavation needed to provide concrete footings for the substation equipment. The substation location would be graveled with crushed rock for grounding and employee safety purposes. As described above, as an alternative to distribution of the batteries across the Project site, the BESS may be installed in a consolidated location adjacent to the on-site substation after conducting the same site preparation activities described above. The BESS units would be pre-manufactured and containerized. Each unit would be installed on a concrete foundation using a small crane or boom truck as appropriate

Electrical Interconnection to Transmission Owner Infrastructure

The Project would connect with the existing SCE 66kV Poplar-Terra Bella line via a new on-site SCE owned and a new on-site developer owned substation, both adjacent to each other in the southwest corner of the Project. The tap of the SCE 66kV Poplar-Terra Bella line would require an approximately 60-foot-

long overhead crossing of Avenue 96 to connect to the on-site substation. Typical 66kV poles are up to 65 feet tall. However, the actual height of the poles would be determined upon final design of the Project.

Fiber Optic Cable

Fiber optic cable would be used on-site to transmit information from each power conditioning station to the plant controller and SCADA system. The fiber optic cable would extend off-site and would be collocated with the new overhead crossing to the Poplar-Terra Bella line.

1.4.4 Construction Equipment and Personnel

During construction-related activities, a variety of equipment and vehicles would be operating on the Project site. **Table 1** provides a list of the type and number of equipment and vehicles anticipated for construction-related activities of each of the Project components.

TABLE 1
ON-SITE EQUIPMENT AND VEHICLE USE BY CONSTRUCTION PHASE

Equipment	Equipment (Nos.)	Hrs per day	Days in Phase	Hrs Used
Move On/Staging/Survey				
Forklifts	1	7	5	35
Generator Sets (84 hp)	2	10	205	4100
Graders	1	7	5	35
Off Highway trucks	6	5	5	150
Carts/ATVs	8	5	5	200
Rollers	0	7	5	0
Bulldozers	0	7	5	0
Scrapers	1	7	5	35
Tractors/Loaders/Backhoes	1	7	5	35
Trenchers	1	7	5	35
Site Grading (site preparation/clearing/grading) Equipment:				
Graders	1	7	65	455
Off-Highway Trucks	3	2	65	390
Carts/ATVs	3	2	65	390
Rollers	1	7	65	455
Scrapers	1	7	65	455
Bulldozers	1	7	65	455
Tractors/Loaders/Backhoes	1	7	65	455
Access Road Construction				
Graders	1	8	65	520
Off Highway Trucks	0	5	65	0
Carts/ATVs	0	5	65	0
Rollers	1	7	65	455

TABLE 1
ON-SITE EQUIPMENT AND VEHICLE USE BY CONSTRUCTION PHASE

Equipment	Equipment (Nos.)	Hrs per day	Days in Phase	Hrs Used
Bulldozers	1	7	65	455
Scrapers	0	8	65	0
Collection Line Construction				
Aerial Lifts	2	2	46.5	186
Cranes	1	4	46.5	186
Forklifts	1	7	46.5	325.5
Generator Sets (84 hp)	1	1	46.5	46.5
Off-Highway Trucks	2	2	46.5	186
Carts/ATV	1	2	46.5	93
Tractors/Loaders/Backhoes	3	7	46.5	976.5
Substation Construction				
Aerial Lifts	2	4	60	480
Cranes	1	2	60	120
Forklifts	1	4	60	240
Off-Highway Trucks	1	2	60	120
Carts/ATVs	1	2	60	120
Tractors/Loaders/Backhoes	4	4	60	960
Trenchers	4	2	60	480
Solar Array Structural and Panel Installation				
Forklifts	5	4	151.5	3030
Generator Sets (25 hp)	4	4	151.5	2424
Off Highway trucks	4	2	151.5	1212
Carts/ATVs	8	3	151.5	3636
Rollers	0	0	151.5	0
Skid Steers	2	4	151.5	1212
Post drivers	7	4	151.5	4242
Tractors/Loaders/Backhoes	1	1	151.5	151.5
Trenchers	4	1	151.5	606

Construction-related equipment would generally operate between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. Nighttime and weekend construction-related work is not anticipated to be required, but may occur on occasion, depending on schedule considerations, and as approved by the Tulare County Planning Department. During summer (May through September) work may begin at 5:30 a.m., and as approved by the Tulare County Planning Department, to reduce the potential for heat-related illness.

Construction phases of the Project are anticipated to overlap, and the number of construction-related workers on-site is anticipated to average 63 workers per day, with the peak number of 90 workers on-site

during major facility construction-related activities in months eight and nine (see **Table 2**). Local labor would be utilized to the maximum extent practicable; the majority of the labor force is anticipated to come from local communities. Workers would commute to and from the Project site on a daily basis, at an estimated round-trip distance of 35 miles. Carpooling for construction-related workers would be encouraged to reduce vehicle trips. Parking for the construction-related workers would be in designated areas on the Project site.

TABLE 2
CONSTRUCTION PHASING AND CONSTRUCTION-RELATED EMPLOYMENT

Construction Element	Site Preparation	Grading/ Excavation	Drainage/Utilities	Construction
Maximum Number of Workers	**25**	**6**	**50**	**90**
Length of Phase (work days)	**10**	**100**	**30**	**180**

1.4.5 Traffic and Deliveries

Project construction-related traffic would primarily include the delivery of construction-related equipment, vehicles and materials, and daily construction-related worker trips. A majority of the equipment (e.g., solar PV panels, inverters, tracker steel, transmission poles, substation circuit breakers, and substation steel) would be delivered to the site in standard widths and lengths by trucks, vans or covered flatbed trailers. Substation equipment, inverter enclosures, and cranes would be delivered to the Project site on wide-load trailers. These trailers would require pilot cars and are anticipated to make up to two round trips during their installation period. The Applicant would facilitate materials delivery during off-peak traffic hours, and would comply with all applicable California Department of Transportation permitting requirements if these loads are oversize. Concrete used in construction-related activities would require approximately 25 total concrete truck deliveries during Project construction-related activities.

1.4.6 Solid and Liquid Waste

During construction-related activities, the Project would involve the transport of general construction-related materials (e.g., concrete, aggregate, wood, metal, and fuel), as well as the materials necessary to construct the proposed PV and battery storage systems. Solid waste generated during construction-related activities would include debris such as concrete, wood, brick, glass, plastics, scrap metal, and similar material. Construction-related waste that is generated at the Project site would be sorted to separate recyclable and non-recyclable materials. It would be stored in dumpsters that would be serviced by a licensed solid waste hauler in the county. Non-hazardous construction-related debris that would be generated would be disposed of in local landfills in accordance with applicable regulations. Soils from drilling, trenching, or excavation would be screened and separated for use as backfill at the site of origin to the maximum extent possible.

All solid construction-related wastes would be disposed of or recycled by qualified service providers. In order to accommodate directing of construction-related materials to proper end-point destinations,

contractors and workers would be educated on waste sorting, appropriate recycling storage areas, and measures to reduce landfill waste.

Liquid (sanitary) wastes generated during Project construction-related activities are anticipated to range from 13 to 20 gallons per worker. Sanitary wastes would be contained in portable facilities, collected at least weekly by a septic pump truck that is permitted by the Tulare County Environmental Health Division, and disposed of at an off-site disposal or treatment facility. An on-site sewage system would not be constructed to treat sanitary wastes during construction-related activities.

Any hazardous wastes, in liquid or solid form, would be removed from the site by a licensed hazardous waste recycling or disposal firm.

1.4.7 Water Requirements and Supply

Water needed for construction-related activities would be pumped from an existing on-site groundwater well. No new wells would be constructed as part of the Project. Construction-related activities water demand would be approximately 147 acre-feet (Dudek, 2018; see Appendix F, pages 3 and 5, included in this document).

Initial construction-related activities water usage would be in support of site preparation and grading activities. The main use of water would be for soil compaction and dust control during earthwork for grading of access road foundations, equipment pads, and Project components. Smaller quantities would be required for preparation of concrete for foundations and other minor uses as described in Section 3.5.3. Subsequent to the earthwork activities, water would be used for dust control along internal access roads and construction-related activities of the substation.

1.5 Project Operation

1.5.1 Schedule

The solar modules at the site would operate during daylight hours seven days per week, 365 days per year. The energy storage facility could operate at any hour any day of the year, but would typically operate no more than 4 hours at a time when charging or discharging electricity. The minimum anticipated life of the Project would be 34 years and 11 months.

1.5.2 Operations and Maintenance Activities

The Project would include an unmanned on-site O&M building which will be monitored remotely 24 hours per day, seven days a week. The fulltime off-site staff for the Project would comprise of one (1) site manager. Visits to the site for emergency purposes/upset events would occur infrequently, if at all (i.e., only a few times per year as needed).

The facility's regular maintenance program would be largely conducted on-site during daytime hours as a safety precaution. Equipment repairs would typically take place in the early morning or evening when the plant is producing the least amount of energy. Key program elements include:

- Responding to plant failures and emergencies in a timely manner.
- Maintaining and managing a pre-qualified group of routine maintenance and repair firms who can address the operational and maintenance needs throughout the life of the facility.
- Creating an optimized cleaning schedule to be more responsive to location and type of installation.
- Maintaining an inventory of spare parts to facilitate timely repairs to maintain plant output.
- Using trouble-ticketing to effectively record, track and escalate all maintenance problems.
- Conducting on-site maintenance as required to clear weeds, grass and ground cover for ground-mount systems.

Off-site security personnel would monitor the Project site and provide rapid response to any incidents; visits to the site for emergency purposes will likely occur infrequently (i.e., only a few times per year), if at all. Panel washing crews would conduct panel washing two to four times per year (as described below).

The proposed facility control and monitoring system would have two primary components: an on-site SCADA system and the accompanying sensor network. The on-site SCADA system would offer near real-time readings of the monitored devices, as well as control capabilities for the devices where applicable. Off-site monitoring/data trending systems would collect historical data for remote monitoring and analysis. Off-site (remote) O&M personnel would monitor the facility. Off-site personnel would be based at an existing facility, most likely in Tulare County, but potentially elsewhere in California.

Local O&M personnel would use the local SCADA and monitoring system to monitor operation and control at the Project facilities. Personnel at a remote operations center would likely provide continuous monitoring coverage of the Project facilities and would respond to real-time alerts and system upsets using advanced monitoring applications. Panel washing would occur approximately two to four times per year, as needed, to clean the active surface of solar panels to optimize transmission of solar light and energy production.

The Applicant/project owner would provide site maintenance throughout the life of the Project. This would include plant and landscape maintenance, replacement of trees or shrubs as needed, management of groundcover under the arrays, and appropriate disposal of any organic and inorganic materials used in the maintenance of the property. Non-hazardous solid waste would be collected for disposal by a licensed waste hauler and disposed of at municipal or county landfills.

1.5.3 Equipment and Personnel

The proposed facilities would be generally unmanned. Occasionally, workers would be present at the Project site to undertake routine site maintenance such as panel washing. Typical maintenance would be anticipated to require up to four part-time temporary staff members for panel washing.

Panel washing is anticipated to take up to 40 days to complete per wash, up to four times per year. Additional staff of two to five people would be required during panel washing and are anticipated to be hired from the local community within Tulare County. Panel washing would occur mainly during the summer months if winter rainfall is sufficient to wash the panels clean, such that only a single cleaning would be required during the summer. However, if a winter is dry or soiling is greater than anticipated, more washing may be necessary up to four times per year.

1.5.4 Site Security

The Project site would be securely fenced along all perimeters with specified points of ingress and egress. In addition to the installation of a 6- to 8-foot-tall chain-link galvanized metal fence topped with standard barbed wire, access gates to the Project site would remain locked when not in use. Off-site security personnel would be available for dispatch to the Project site 24-hours per day, seven days a week.

The site will incorporate security measures to ensure the safety of the public and the facility. The proposed Project would be fenced along all borders with locking gates at the specified points of ingress and egress. Off-site security personnel may be dispatched during nighttime hours or be on-site depending on security risks and operating needs. The Project site would provide illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security, downward-facing, and shielded to focus illumination on the desired areas only. Motion detectors would be installed on all lights except the main site entrance.

The perimeter fence would be designed to allow ongoing movement of wildlife across the Project site. The bottom of the fence would be four to seven inches above the ground along the entire perimeter, as measured from the top of the ground to the highest point of the bottom of the fence. Alternatively, standard deer fencing installed with the larger openings at the bottom may also be used. Because the larger openings measure four inches or greater, there is no need to lift the fencing material off the ground. Fence posts would be drilled and grouted, or driven pneumatically, depending upon site-specific soil characteristics. All fence posts will be capped to prevent the entrapment of birds and other wildlife. Final design specifications for the fence would be determined during detailed Project engineering. Vehicle access gates would be installed as necessary, with the gates to remain locked when not in use.

1.5.5 Solid and Liquid Wastes

Operation and maintenance of the Project is not anticipated to generate hazardous waste on a recurring basis. The transformers proposed to be located at the Project substation would use mineral oil for cooling purposes, and certain battery technologies may include materials considered to be hazardous. Disposal of these materials, if required, would occur in accordance with applicable regulations. During normal operation, PV panels, batteries, and inverters would produce no waste.

The BESS would be designed to comply with Section 608 of the International Fire Code (IFC), which has been adopted by the State of California to minimize risk of fire from stationary storage battery systems and contain fire in the event of such an incident. Under California law, the BESS also must comply with Article 480 of the Electrical Code, which presents requirements for stationary storage batteries. Article 480 provides the appropriate insulation and venting requirements for these types of systems, further preventing associated risk of fire from the BESS.

Non-hazardous solid waste generated during operations would consist of paper, wood, plastic, cardboard, deactivated equipment and parts, defective or broken electrical materials, empty non-hazardous containers, and other miscellaneous solid wastes. Solid waste would be removed on a regular basis by the operator. Liquid (sanitary) wastes generated during Project construction- and operation-related activities would be contained in portable facilities and disposed of at an off-site disposal or treatment facility.

At the end of the Project life, the PV panels would be evaluated to determine their value in a secondary market. If not resold or repurposed, they would be recycled. The majority of the remaining Project components would be recycled. Equipment, such as drive controllers, inverters, transformers, and switchgear, can be either re-used or their components recycled. Poured concrete pads would be removed and recycled or reused as clean fill. All batteries are considered hazardous waste in California when they are discarded whether rechargeable or not under Title 22, California Code of Regulations Sections 66273.9 (definition) and 66273.2 (applicability). Therefore, when the BESS has reached the end of its useful life, disposal must be conducted in accordance with these provisions. This characterization would also result in either opening a "hazardous materials business plan" (HMBP) with the local Certified Unified Program Agency (CUPA) or amending an existing HMBP accordingly.

1.5.6 Water Requirements

During the life of the Project, approximately two acre-feet of water per year would be needed for panel washing and two acre-feet for dust control. Water for Project operation-related activities would be provided from the existing on-site water well as used for Project construction-related activities (Dudek, 2018; see Appendix F, pages 3 and 5, included with this document). No wastewater would be generated during panel washing because the water used would be absorbed into the soil or would evaporate.

1.6 Decommissioning and Site Reclamation

The Project proponent expects to sell the renewable energy produced by the product under the terms of a long-term Power Purchase Agreement (PPA) or directly into the wholesale market. The life of the solar facility is anticipated to be up to 34 years and 11 months; however, the Project proponent may, at its discretion, choose to extend the life of the facility, update technology and re-commission, or decommission and remove the system and its components. If, and when, a decommissioning event occurs, the solar site could then be converted to other uses in accordance with applicable land use regulations in effect at that time.

If, and when, Project decommissioning occurs, Project structures would be removed from the Project site. Above-ground equipment that would be removed would include module posts and support structures, on-site transmission poles that are not shared with third parties and the overhead collection system within the Project site, inverters, transformers, energy storage equipment, electrical wiring, equipment on the inverter pads, and related equipment and concrete pads. The substation would be removed if it is owned as part of the Project; however, if a public or private utility assumes ownership of the substation, the substation may remain on-site to be used as part of the utility service to supply other applications. Project roads would be restored as close as feasible to pre-construction conditions unless the landowner elects to retain the improved roads within the property. The area would be thoroughly cleaned and all debris removed. As discussed above, most materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. A collection and recycling program would be executed in the event system components are manufactured with hazardous materials.

A collection and recycling program would be executed to promote recycling of Project components and minimize disposal of Project components in landfills. All decommissioning- and restoration-related activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and county regulations. The Project proponent anticipates that a secondary

market for PV modules will develop in the future. Although energy output may diminish, PV modules are anticipated to continue to have a productive life and can be decommissioned from a prime location or re-commissioned in another location.

When the Project ceases operation, the facilities would be decommissioned and dismantled, and the Project site restored to a condition suitable for agricultural use (or other use as allowed by zoning/land use designations at the time of decommissioning). Decommissioning-related activities of the Project site would take approximately 4-6 months and would comprise removal of above-ground and below-ground (subsurface) structures; and site reclamation (including restoration of topsoil, revegetation, and seeding). Temporary erosion and sedimentation control BMPs would be implemented during the decommissioning-related phase of the Project. Decommissioning-related activities would consist of:

- Dismantling and removal of all above-ground equipment (solar panels, tracker units, transformers, substation, battery energy storage system, enclosures, etc.);
- Excavation and removal of all below-ground cabling;
- Removal of posts;
- Removal of roads;
- Break-up and removal of concrete pads and foundations to a depth of up to three feet; and
- Scarification of compacted areas and re-grading of the Project site to pre-Project conditions.

Decommissioning-related activities of the Project would require similar water use as construction-related activities, due to water needs for dust control. Following decommissioning, the Project site would be returned to agricultural-ready use, which would likely require similar water use as existing conditions, or other use as allowed by zoning/land use designations at the time of decommissioning. Post-Project, it is anticipated that the Project site would continue in active agricultural use, which is the same as its pre-Project use, and the same as current use of adjacent parcels. To help with post-construction dust control, a re-vegetation plan would be developed and implemented to repair temporary disturbance from installation-related activities, and to be compatible with long-term site vegetation management.

1.7 Other Approvals

Construction and operation-related activities of the proposed Project may include (but not be limited to) the following regulatory reviews and approvals:

- The adoption of a Mitigated Negative Declaration by the County of Tulare.
- The issuance of Special Use Permit by the County of Tulare.
- Approval of a Stormwater Pollution Prevention (construction) Plan by the Central Valley Regional Water Quality Control Board.
- Compliance with applicable rules/regulations/permits of the San Joaquin Valley Unified Air Pollution Control District (e.g., Regulation VIII (Fugitive PM10 Prohibitions [dust control]), and Rule 9510 (Indirect Source Review)).

References

County of Tulare, 2012. Climate Action Plan.

County of Tulare, 2006. Strategic Management System (SMS).

County of Tulare, 2007a. Assessor's Maps BK. 302. PG 23.

County of Tulare, 2007b. Vicinity of Terra Bella Assessor's Maps BK. 302, PG. 46.

County of Tulare, 2012b. Tulare County General Plan 2030 Update. Accessed at http://generalplan.co.tulare.ca.us/.

County of Tulare, Need a Map? Zoning. Accessed at http://tularecounty.ca.gov/rma/index.cfm/documents-and-forms/planning-documents/need-a-map/zoning/.

California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP), 2017. Tulare County Important Farmland 2016, published December 2017.

California Department of Water Resources (DWR), 2016. Groundwater Basin Boundary Assessment Tool. Accessed at https://gis.water.ca.gov/app/bbat/.

Deer Creek Solar I, LLC, 2017. Special Use Permit Application No. PSP18011. Submitted February 7, 2018.

Dudek, Water Supply Assessment for the Deer Creek Solar Project, Tulare County, California, August, 2018.

Federal Emergency Management Agency (FEMA), 2017. GIS Files. Accessed at http://msc.fema.gov/portal.

Quad Knopf, 2016 Fatal Flaws/ Critical Issues Analysis Report Deer Creek Solar 1 Project Tulare County California. Project prepared for Lend Lease (US) Energy Development LLC, June 2016.

U.S. Department of Agriculture (USDA), 2017a. Custom Soil Resource Report for Tulare County, California, Central Part; and Tulare County, Western Part, California. Accessed at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Department of Agriculture (USDA), 2017b. Custom Soil Resource Report for Tulare County, California, Central Part; and Tulare County, Western Part, California "West Parcel". Accessed at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Department of Agriculture (USDA), 2017c. Custom Soil Resource Report for Tulare County, California, Central Part; and Tulare County, Western Part, California "East Parcel". Accessed at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Geological Survey (USGS), 2017 National Hydrography Dataset.

CHAPTER II
Environmental Checklist

2.1 Aesthetics

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	AESTHETICS — Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a) ***No Impact.*** For the purposes of this Project, a scenic vista is defined as an area that is designated, signed, and accessible to the public for the purpose of viewing and sightseeing. The Project site is located in unincorporated southwestern Tulare County in a generally undeveloped area on the floor of the San Joaquin Valley. The area surrounding the Project site is primarily rural agricultural land (with scattered rural residences to the west and south) and the Project would be low-profile. No building will be greater than 18 feet in height and the solar tracker array would not exceed 10 feet in height. As described in Chapter 1, the shield wire on the substation and 66 kV poles would be up to 70 feet tall. However, these components would be narrow and would blend in with existing electrical and communication infrastructure. There are no designated scenic vistas within visible distance of the Project site (County of Tulare, 2010). Therefore, the Project would have no impact on a scenic vista.

b) ***No Impact.*** There are no rock outcroppings, historic buildings, or other designated scenic resources within or near the Project site (County of Tulare, 2010). The California Scenic Highway Program allows counties to nominate an eligible scenic highway to be approved by the California Department of Transportation and placed under the scenic corridor protection program. In Tulare County, there is currently one officially designated scenic highway, and two highways that are

eligible for designation (DOT, 2017). Approximately 2 miles of the officially designated Scenic Highway (State Route) 180 passes through Tulare County. The portion of State Route (SR) 180 that passes through the County is approximately 50 miles north of the Project site. Additionally, there are two Eligible State Scenic Highways, SR-190 and SR-198, and one Connecting Federal Highway, SR-198 in Sequoia National Park (Caltrans, 2017). The Project site is approximately five miles south of SR-190 and approximately 23 miles south of CA-198 and, as such, the Project is not located within the viewshed of any of the listed designated or eligible highway segments.

Additionally, the County of Tulare identified a number of County Scenic Roads in its 2012 General Plan Update. The County Scenic Roads nearest to the Project include Avenue 128 (3 miles north of the Project), Road 192 (4 miles west of the Project), Old Stage Road (4 miles northeast of the Project), and Avenue 56 (5 miles south of the Project). The Project will be visible to motorists traveling along Road 224 or SR 65 with the goal of ultimately intersecting with these county scenic corridors. However, due to the intervening distance between the County Scenic Roads and the Project (3-4 miles) and the existing agricultural nature of the area (e.g., orchards, vineyards, etc.), the Project would likely have short-term and limited (if any) visibility along the horizon and would not impact existing scenic or visual resources in the area. Although Old Stage Road rises in elevation to the southeast (which would increase the distance that could be viewed from the road), landscape features (i.e., hills) are present to the southwest and would block and screen views of the Project from Old Stage Road. As a result, the Project would have no impact on existing scenic resources or highways. As noted earlier, the Project is located in a relatively flat area and does not contain scenic resources such as significant trees, rock outcroppings, or historic buildings. Therefore, there would be no impact to an eligible or designated state scenic highway or other scenic resources as a result of the proposed Project.

c) ***Less Than Significant.*** The Project site is located in an area that has been subjected to significant alteration due to historical and current agricultural use. The Project site is rural in character with a variety of visual encroachments, including an agricultural shed, electrical distribution lines, well structures, and roadways. The Project site is located in an area that has been subjected to significant alteration due to prior agricultural uses along with urbanization originating from the east. Overall, the Project would modify the existing landscape by utilizing approximately 378 agricultural-use acres for a solar energy generation facility for an anticipated 34 years and 11 months. In recent years, the Project site has been used for plums and mostly dry land farming of oat hay and wheat. There is an open side shed on the Project site and there are no historic buildings. The Project site is generally flat and does not have any remarkable elevation contours or geologic features, large trees or other prominent natural features. The visual character of the Project vicinity can generally be described as agricultural and scattered rural residential. Agricultural lands and facilities, scattered rural residences, and local roads surround the Project site. Agricultural fields separate Deer Creek (approximately 800 feet north) from the Project site, while Deer Creek Ditch is directly adjacent to the northern boundary of the Project. The unincorporated community of Terra Bella is located approximately 0.5-mile east of the Project site, east of SR-65.

Project construction- and decommissioning-related activities would require minimal grading as the Project site is generally flat. Plum tree removal would be required as a part of construction-related activities in order to install the solar arrays. One small, open-side shed on the Project site would be

removed during construction-related activities. Construction-related impacts to visual character and quality of the Project site and surrounding areas would occur due to the presence of exposed soil, construction-related vehicles and workers, heavy equipment and building materials. This impact and change from existing conditions would be noticeable but temporary, lasting only through the end of the period of construction-related activities. Therefore, construction- and decommissioning-related activities would not substantially change the existing visual character and quality of the Project site or surroundings.

Impacts from Project operation would be associated with the presence of new structures including the installation of a substation, PV panels, operations and maintenance building, meteorological station, a battery storage facility, site perimeter fencing, and maintenance roads at the Project site. These structures would be present for the duration of Project operation, which is anticipated to be approximately 35 years. The most visually noticeable components of the Project would be the overhead interconnection line crossing over Avenue 96 to the south and the solar tracker array. These Project components would introduce industrial structures to the existing rural, agricultural visual setting of the Project site and vicinity.

Viewers potentially affected by operational impacts would be motorists traveling on roads near the Project site such as Terra Bella Avenue, Road 224, Road 232, and SR-65. The overhead interconnection line would not substantially change the visual character of the lands surrounding the Project site, as there are existing overhead transmission lines to which the Project would connect. The proposed solar tracker arrays would have a maximum height of 10 feet. The photovoltaic arrays, despite being 10 feet in height at their maximum height, are designed to have a low profile and would only be noticeably visible to those standing adjacent to the Project site. Although not an agricultural use, adjacent views through the regular array support structures would be reminiscent of adjacent views through the regular arrays of orchard trees that surround (and terrain shield) much of the Project site. Additionally, the solar arrays and associated fencing would be set back from surrounding roads such that a vehicle driver's view of the Project will be short-lived and attenuated in the foreground by the required setbacks.

The Project substation will introduce vertical, industrial structures into the visual landscape; however, the existing visual setting contains power lines, agricultural equipment, and agricultural-related buildings and structures common in existing views near the Project site. Visual changes attributable to the Project would be minimal as the Project's components (solar array, operations/maintenance building, substation, battery storage facility, etc.) are relatively low in height, the Project incorporates non-reflective materials, and it does not distract from the existing vegetation and developments in the surrounding area. Overall, although the Project would result in a change to the existing visual setting, the Project would not substantially degrade the existing visual character or quality of the site and its surroundings. Therefore, the Project would result in a less than significant impact to existing visual character and public views of the site.

The Tulare County General Plan has outlined goals and policies related to the preservation of scenic and working landscapes in the County. Specifically, Policy SL-1.2 requires that development on or near croplands be "sited so as to not obstruct important viewsheds" by referencing traditional agricultural building forms and materials, by screening parking and breaking up paving with landscaping, and minimizing light pollution and bright signage (Tulare County, 2012). As

mentioned above, the PV arrays are designed to have a low profile and would not interrupt views of working landscapes surrounding the Project. The Project's regularly spaced panel supports would be reminiscent of views of regularly spaced orchard tree trunks. The O&M facility would be designed to resemble traditional farm buildings. Parking and paving would be minimal. No bright signage would be used for the Project and all light would be shielded and directed downward. As a result, the Project would not conflict with local policies governing scenic quality. Impacts would be less than significant.

d) ***Less than Significant.*** Construction- and decommissioning-related activities of the proposed Project would occur during daylight hours and, as a result, no lighting would be necessary for construction-related activities. These activities will lead to a temporary increase in truck and equipment traffic that may increase glare conditions due to light hitting the surface of equipment or trucks. However, this potential increase in glare would be short-term, intermittent, and temporary as any sources of glare will not be stationary for an extended period of time and would be eliminated once construction and decommissioning-related activities are completed. Therefore, construction- and decommissioning of the proposed Project would result not in substantial glare that would affect daytime or nighttime views. As such, the Project would result in a less than significant impact.

During operation, the Project would include evening hours security lighting at the entrance and at each inverter station. Motion detectors would be installed on all lights except the main site entrance. All lighting would be designed in accordance with applicable Tulare County requirements. This lighting would be designed to provide the minimum illumination necessary to the achieve safety and security objectives. Light fixtures would be shielded and directed downward in order to avoid light spillage onto adjacent properties. These methods to limit light pollution would prevent the project from becoming a new source of substantial light. All lighting associated with the Project would be subject to County approval and compliance with Tulare County requirements. The proposed nighttime security lighting would result in a less than significant impact.

The Project would generally avoid the use of materials such as fiberglass, aluminum or vinyl/plastic siding, and brightly painted steel roofs, which have the potential to create on- and off-site glare impacts. Unlike solar thermal facilities, which rely on large fields of mirrors to reflect light, the potential reflection from solar PV modules used on a tracker mounting system is inherently low due to the materials of its construction and its mode of operation. PV cells are designed to capture (rather than reflect) nearly all sunlight. Reflected light from the surface of standard PV modules is between 10 to 20 percent of the incident radiation (lower than free water and glass surfaces), while steel (used on industrial roofs) is between 40 to 90 percent (Aztec, 2014). In addition, because tracker systems follow the sun, the underside of the PV panels and most of the structure supporting them are shadowed throughout the day.

Moreover, light reflected from the PV panels would travel above the line of site of most, if not all, viewers. PV tracking systems position the array so that the sun's rays are always perpendicular to the face of the panel. What light is reflected from the panels is reflected back towards the sun. During midday conditions, when the sun is high in the sky, the rays of the sun are reflected directly upwards. When the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; however, reflected rays would still be directed away from ground-level receptors because the maximum downward angle of the arrays would not be below 30 degrees. Similarly, and also due

to their low reflectivity, the panels are not anticipated to cause visual impairment for motorists on area roadways because reflected rays would not be below 30 degrees and would pass well above the line of sight of drivers. Viewers consequently are not anticipated to experience substantially increased glare or glint as a result of the Project. Therefore, the proposed Project will have a less than significant impact in terms of light and glare.

References

Aztec, 2014. Iris Photovoltaic Solar Project (85JP 8ME, LCC) – Reflectivity Analysis.

California Department of Transportation (Caltrans), 2011. *California Scenic Highway Mapping System.* Accessed at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

County of Tulare, 2010. General Plan Background Report. February 2010. Accessed at: http://generalplan.co.tulare.ca.us/.

2.2 Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
AGRICULTURE AND FORESTRY RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the Rural Valley Lands Plan point evaluation system prepared by the County of Tulare as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion

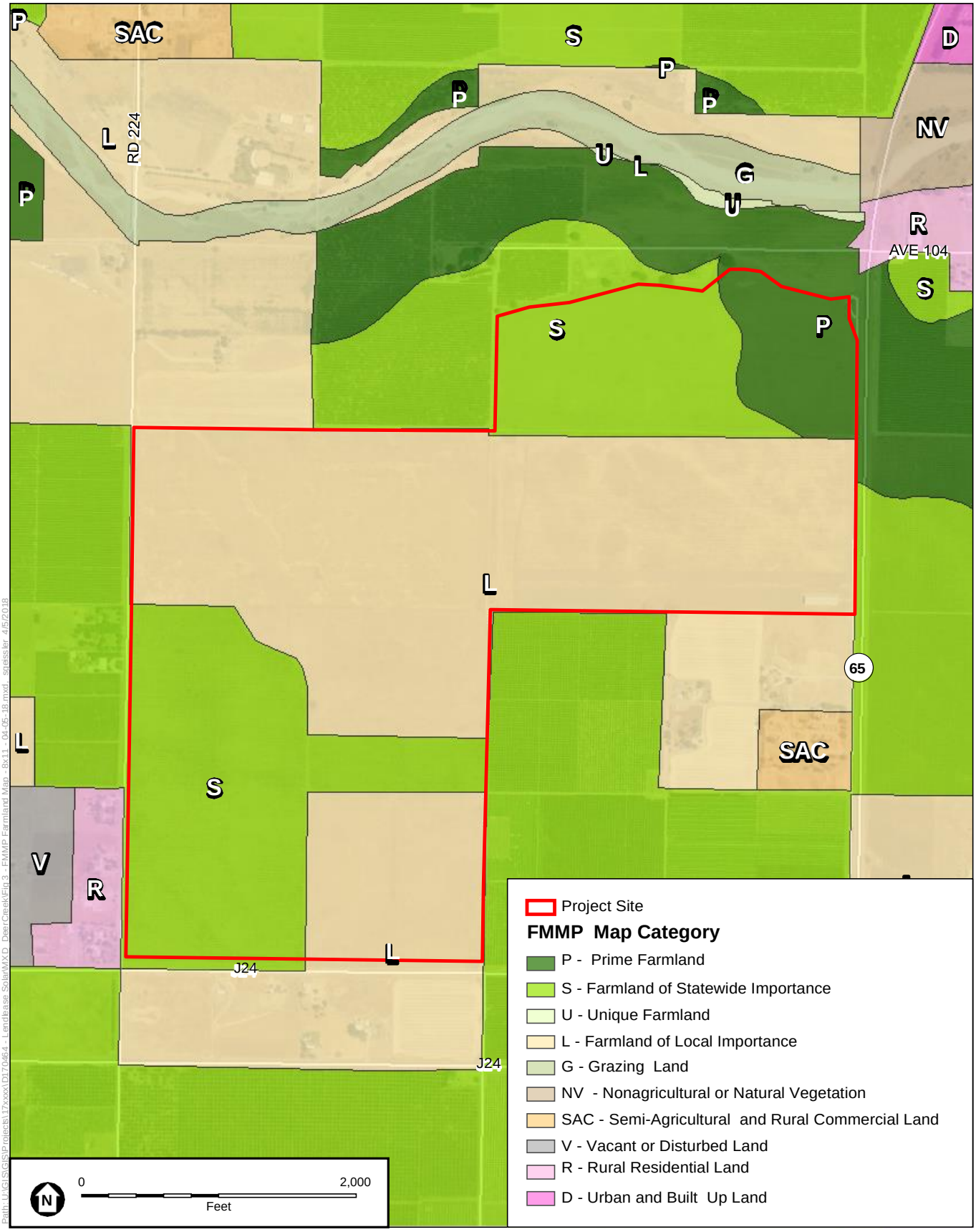
a) ***Less than Significant.*** Pursuant to Public Resources Code Section 21060.1, "Agricultural land" is defined as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland as defined by the United States Department of Agriculture (USDA) land inventory and monitoring criteria, as modified for California. Collectively, these three categories are referred to as "Farmland" by the California Department of Conservation (DOC). The DOC applies the USDA National Resources Conservation Service (NRCS) soil classifications to identify and classify agricultural lands. The DOC periodically prepares maps of important farmland types as part of the Farmland Mapping and Monitoring Program (FMMP). The following land use and farming categories used in the FMMP mapping program are applicable to the Project site:

> *Prime Farmland:* Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
>
> *Farmland of Statewide Importance:* Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

> *Farmland of Local Importance:* Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. Farmland of Local Importance has been defined by the Tulare County Board of Supervisors as: "Lands that produce dryland grains (barley and wheat); lands that have physical characteristics that would qualify for "Prime" or "Statewide Important" farmlands except for the lack of irrigation water; and lands that currently support confined livestock, poultry, and/or aquaculture operations."

The Project site is mapped by the *State Farmland Mapping and Monitoring Program (FMMP)* to include approximately 20.3 acres of Prime Farmland and 129.5 acres of Farmland of Statewide Importance (see **Figure 3**), however these lands have not been irrigated for the past four years (since 2014) and therefore, no longer meet the Department of Conservation's definitions of Prime Farmland and Farmland of Statewide Importance. Approximately 223.2 acres of the site are designated as Farmland of Local Importance. Surrounding lands are a similar mix of farmland types with most adjacent lands categorized as Farmland of Statewide Importance and Farmland of Local Importance (FMMP, 2016). The proposed Project would result in an anticipated temporary conversion of farmland to a non-agricultural use. However, for the reasons described below, this conversion would be temporary and would not be considered an incompatible use that would disturb agricultural operations in the vicinity nor would it impede or reduce the productive capacity of the Project site for future agricultural uses.

On February 26, 2013, per Resolution No. 2013-0104, Tulare County adopted a two-level review process for evaluating the siting of public and private utility structures on agricultural zoned land to analyze potential agricultural conversion impacts. The first level of review pertains to all agricultural zoned lands, while the second level applies to lands under Williamson Act contract. Level II states that a project should adhere to all the criteria noted in Level I.



SOURCE: ESA, 2018.

Deer Creek Solar Project

Figure 3
FMMP Farmland Map

ESA

Level I: Agricultural Zoned Lands

a) *Public and private utility structures on lands other than irrigated prime farmland, as defined in Level 1, Section C, may be permitted subject to findings and conditions. Desired locations include marginal or impaired lands, land with insufficient water supplies for viable agricultural production or in the UDB, UAB, HOB areas of the County for agricultural buffers.* The Project is consistent with the "other than irrigated prime farmland' criterion because the 20 acres (5 percent) of the project site historically mapped as Prime Farmland have not been irrigated for four years and therefore no longer qualify as "Prime Farmland" under FMMP criteria.

b) *Should be in proximity to the electrical grid/corridor/electrical substation or end user.* The proposed Project would transmit the power generated at the site via a new on-site Project substation and SCE-owned substation, which would connect to SCE's 66kV Poplar-Terra Bella line approximately 60 feet south of the Project site.

c) *Should not support, unless a unique proposal is approved by the Board of Supervisors, the siting of public and private solar utility structures located outside of UDB, UAB, HOB areas of the County on irrigated prime farmland as defined by any of the following criteria:*

   i. *Identified as Prime farmland by the FMMP.* As noted above, only 20 acres (5 percent) of the Project site is considered Prime Farmland by the FMMP. However, the 20 acres have not been irrigated for the past 4 years (since 2014) and therefore no longer qualify as Prime Farmland.

   ii. *Identified as Class I Soil by the Natural Resources Conservation Service (NRCS).* The Project site is considered to be impaired farmland due to the predominance of poor quality soils. The NRCS Non-Irrigated Land Capability Classification System evaluates the suitability of soils for most types of field crops. Soils are then grouped in capability classes that describe the limitations that the soil class might present for crop cultivation. The Class groups are numbered from 1 through 8 (USDA, 2017). The capability classes of the soil types of the Project site are presented in **Table AG-1**.

TABLE AG-1
SOIL INFORMATION FOR DEER CREEK SOLAR I SITE

Map Unit Symbol	Map Unit Name	Non-Irrigated Capability Class	Site Percentage
106	Centerville clay, 0 to 2 percent slopes	4	16.3%
107	Centerville clay, 2 to 5 percent slopes	4	26.3%
114	Exeter loam, 0 to 2 percent slopes	4	48.1%
135	San Joaquin loam, 0 to 2 percent slopes	4	4.3%
143	Yettem sandy loam, 0 to 2 percent slopes	4	5.0%

SOURCE: USDA, 2017.

As demonstrated in **Table AG-1**, all soils within the Project site have a Non-Irrigated Capability Class of 4 meaning that the soils "have severe limitations that reduce the choice of plants or that require very careful management, or both" (USDA, 2017).

iii. Land having been actively farmed in permanent crops at least one year during the past ten years. Plums are the only permanent crops that have been farmed on approximately 25 percent of the Project site during the past 10 years. Plums have not been harvested since 2014 and the plum trees died due to a lack of water in 2015, but have not been cleared. Solar development of the site, therefore, does not require removal of permanent crops, as none exist on site.

*d) Should not support the removal of permanent crops when there is sufficient water available for continued crop production on lands outside of UDB, UAB and HOB areas of the County regardless of soil capability classi*fication. The plum trees on approximately 23 percent of the property died in 2015 due to lack of water but have not been cleared. Solar development of the site therefore does not support removal of permanent crops, as none exist on site. Moreover, as explained below, there is insufficient water available for continued crop production.

e) *Identify sources of water not limited to well, irrigation canal, water transfer and conduct water availability analysis demonstrating either (1) the insufficiency of adequate water supplies for continued crop production, or (2) the infeasibility of continued agricultural activities on the subject property. This analysis must include input from the water district, or other water authority.* The proposed Project is not supplied by, or located within, any urban water management planning area. Nor is it located within any agricultural or urban water districts, or other public or private utilities that deliver water to the end user (Dudek, 2018; see Appendix F, page 2, included in this document). There are two functioning wells on the property. One diesel-powered well and one natural gas-powered well. The natural gas well operates at about 600 gpm. The diesel well operates at about 450 gpm. 4.6 acre-feet can be pumped in a 24-hour period. When the property was irrigated, it was irrigated with up to 150 acre-feet, three times per year, for a total of up to 450 acre-feet each year. To continue doing this today would require both wells to pump around the clock for a total equivalent of up to 96 days a year. Pumping this much water today would cost up to $119,439 of well pump fuel (diesel and gas). The property grew an average crop yield of approximately $170,000 for prunes over one-quarter of the property and wheat over the remainder. After the cost of pump fuel, there is little to no profit left after paying the additional cost of fertilizer, tractor work, seed costs, and labor costs to plant and harvest the crop. The high cost of fuel and the low return make continued agricultural operations at the property unprofitable. The property is located within the Eastern Tule Groundwater Sustainability Agency. Groundwater rights are presently unrestricted, resulting in overdraft conditions. Because SGMA will impose restrictions to avoid further overdraft, future groundwater rights on the property are anticipated to be restricted below historic levels of

use with an additional replacement water charge for all water used above that level. The additional cost of replacement water over and above well pumping fuel costs (diesel, electric, natural gas.) will further contribute to the infeasibility of continued agricultural use of the site.

f) Analyze the potential negative impacts on neighboring farming operations and mitigate for those impacts including, but not limited, to increases in invertebrate and vertebrate pest and invasive plant species. The Mitigation Monitoring Reporting Program (MMRP) will mitigate potential negative impacts as identified in this Initial Study. Also, conditions of approval will require removal of combustible material from the site; the submission of a soil reclamation plan; fencing; dust management; on-site parking; management of vector harborage and breeding; invasive species plan, etc. These measures will ensure impacts on neighboring farm operations will be less-than-significant. Therefore, the proposed Project is consistent with the "neighboring farming operations" criterion.

g) Should not impede or reduce the productive agricultural capacity of the land for future uses. Thus, reclamation of the land to its previous agricultural condition is crucial and appropriate financial assurances are essential. The proposed solar facility represents a conversion of farmland with a life of approximately 35 years. It is unknown at this time if the solar facility may extend beyond 35 years. As a condition of approval, a Reclamation Plan would be submitted as a part of the permit application materials. This Reclamation Plan would provide financial assurances along with a detailed plan to remediate soils and return the land to its original pre-construction condition upon termination of the Project.

As described in the Project Description, at the end of the Project's life all infrastructure associated with the Project would be removed and the site would be restored to its original state allowing it to return to agricultural use. These reclamation activities would be in accordance with the Reclamation Plan submitted as a Condition of Approval of the Special Use Permit.

At the end of the Project life, all infrastructure associated with the Project would be removed, the top soil will be restored, revegetated and seeded in order to return the land to its pre-construction condition. At the time of re-use, the zoning/land use designations will be used to determine the Project site's highest and best use. As a result, the Project would result in a less than significant impact on this item.

h) Require developer agreements that include cost recovery, loss of crop production and/or subvention funds, removal of facility and reclamation requirements, and other Tulare County financial incentives. A condition of approval will require the Project proponent to enter into the "Developer Agreement and Reclamation Plan for the Solar Photovoltaic Electric Generating Facility", adopted on August 31, 2010 by Board of Supervisors Resolution 2010-0717. Therefore, the proposed Project is consistent with the "developer agreement" criterion.

i) Require Sales and Use Tax Agreements to maximize capture of sales and use tax revenue. A condition of approval will require the Project proponent to enter into the "Agreement For Allocation of Sales and Use Tax Revenues and Limitations on Transfer of the Project to Nontaxable or Tax Exempt Entities", adopted by the Board of Supervisors on February 28, 2012 by Resolution 2012-0187. Therefore, the proposed project is consistent with the "Sales and Use Tax Agreements" criterion.

Level II: Agricultural Zoned Lands Under Williamson Act Contracts

a) Adhere to all criteria noted in Level I to be completed.
Please see above.

b) Review Resolution No. 89-1275 - Uniform Rules for Agricultural Preserves - and Resolution No. 99-0620 establishing Rules for Farmland Security Zones to insure compatibility. The Tulare County Board of Supervisors defined allowable uses on contracted lands in Resolution No. 89-1275, which established Uniform Rules for Agricultural Use. Resolutions No. 89-1275 and No. 99-0620 established the construction of gas, electric, water, and community utility facilities as compatible uses for lands under a Williamson Act Contract. Public and private utility structures were determined to be a compatible use on lands under Williamson Act Contract with Resolution No 2010-0717. Under Resolution No. 2010-0590, the Tulare County Board of Supervisors determined that solar generating facilities are a compatible use in Exclusive Agriculture Zone Districts subject to conditions of approval set forth in Special Use Permits.

c) Review Williamson Act Contract Contents to insure compatibility. Land Conservation Contracts No. 6579, Preserve No. 2160 and Contract No. 9094, Preserve No. 3151 allow the County to modify the list of permissible uses on the Project site. The Tulare County Board of Supervisors defined allowable uses on contracted lands in Resolution No. 89-1275, which established Uniform Rules for Agricultural Use. Resolutions No. 89-1275 and No. 99-0620 established the construction of gas, electric, water, and community utility facilities as compatible uses for lands under a Williamson Act Contract. Public and private utility structures were determined to be a compatible use on lands under Williamson Act Contract with Resolution No 2010-0717. Under Resolution No. 2010-0590, the Tulare County Board of Supervisors determined that solar generating facilities are a compatible use in Exclusive Agriculture Zone Districts subject to conditions of approval set forth in Special Use Permits. The proposed Project is therefore compatible with the Williamson Act contracts applicable to the Project site.

b) ***Less than Significant.*** The Project site is zoned AE-40 (Exclusive Agriculture- 40 acre minimum) and AE-10 (Exclusive Agriculture- 10-acre minimum). Additionally, both parcels are under Williamson Act Contracts. The Williamson Act enables local governments to enter into contracts with private landowners that restrict land use to agricultural or related uses in return for lower property tax assessments. Local governments are responsible for the implementation of this program; therefore, the rules that determine compatible uses within a contract vary by jurisdiction.

The Tulare County Board of Supervisors defined allowable uses on contracted lands in Resolution No. 89-1275, which established Uniform Rules for Agricultural Use. Resolutions No. 89-1275 and No. 99-0620 established the construction of gas, electric, water, and community utility facilities as compatible uses for lands under a Williamson Act Contract. Public and private utility structures were determined to be a compatible use on lands under Williamson Act Contract with Resolution No 2010-0717. Under Resolution No. 2010-0590, the Tulare County Board of Supervisors determined that solar generating facilities are a compatible use in Exclusive Agriculture Zone Districts subject to conditions of approval set forth in Special Use Permits.

Resolutions 2010-0717 and 2013-0104 subsequently created a two-level process through which solar facility projects can be found as a compatible use on Williamson Act Contracted lands. This allows impaired agricultural lands to be put to the highest and best use without cancelling the Williamson Act Contract, therefore preserving the option to return to farming the land in the future. Pending the approval of the Special Use Permit for the proposed Project and the approval of findings of compatibility under the Williamson Act, the Project would present a temporary change in land use that has been found to be compatible with the terms of the existing Williamson Act contract on the Project site. Therefore, the proposed Project would not conflict with existing zoning or a Williamson Act Contract and no impact would occur.

c, d) ***No Impact.*** The Project would not occur on land zoned as forest land or timberland, or result in a loss of forest land. Therefore, the Project would have no impact on forest resources.

e) ***Less than significant.*** The Project site is not located near land zoned as forest land or timberland and therefore would not result in any changes in the environment that might convert forest land to non-forest land. The proposed Project would result in the use of approximately 378 acres of farmland to a non-agricultural use for approximately 35 years. However, as discussed earlier, this conversion is planned as temporary and in accordance with existing land use policies and regulations. Land surrounding the Project site is a mix of cultivated and fallow farmlands, and scattered rural residences. As discussed in the Project Description, construction-, operation-, maintenance-, and decommissioning-related activities would take place within Project site boundaries. The proposed Project is not anticipated to involve changes to the environment that are different than impacts to the environment from agricultural production. Additionally, during construction- and decommissioning-related activities, Best Management Practices such as erosion prevention measures and dust-minimization measures (including those required by the San Joaquin Valley Air Pollution Control District) would be employed to limit the impact of the proposed Project on adjacent properties. Maintenance activities during Project operation would be minimal and limited to replacing broken facility components and washing the panels periodically. Therefore, no other changes to the environment are anticipated that could result in the conversion of farmland to non-farmland. There would be no impact on this item.

References

Dudek, Water Supply Assessment for the Deer Creek Solar Project, Tulare County, California, August, 2018.

United States Department of Agriculture (USDA), Natural Resources Conservation Service. Web Soil Survey. Accessed at: http://websoilsurvey.nrcs.usda.gov/ Accessed December 19, 2017.

2.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY — Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard ?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a) ***Less than Significant.*** Construction-, operation-, and maintenance-, and decommissioning-related activities of the proposed Project would result in emissions of criteria pollutants including ozone precursors such as ROG and NO_x as well as particulate matter. For a conservative estimate, emissions during Project decommissioning-related activities were considered to be equal to those during construction-related activities. As decommissioning would occur in an assumed approximately 35-year time frame, the construction equipment fleet for decommissioning is expected to be substantially cleaner than that assumed for the construction analysis. The San Joaquin Valley Unified Air Pollution Control District's (Air District or SJVAPCD) *2016 Plan for the 2008 8-Hour Ozone Standard (SJVACPC, 2016a), 2013 Plan for the Revoked 1-Hour Ozone Standard* (SJVACPC, 2013), *2007 Ozone Plan* (SJVACPC, 2013), *2007 PM10 Maintenance Plan and Request for Redesignation* (SJVACPC, 2007), *2008 PM2.5 Plan* (SJVACPC, 2008), *2012 PM2.5 Plan* (SJVACPC, 2012), *2015 Plan for the 1997 PM2.5 Standard* (SJVACPC, 2015a), the *2016 Moderate Area Plan for the 2012 PM2.5 Standard* (SJVACPC, 2016b), and the 2018 Plan for the 1997, 2006, and 2012 *PM2.5 Standard* (SJVACPC, 2018a) outline a number of control strategies to help the SJVAPCD reach attainment for the revoked federal 1-hour ozone standard, the 24-hour PM_{10} standard, and the federal and state $PM_{2.5}$ standards, respectively. The San Joaquin Valley Air Basin (SJVAB or Air Basin) is in attainment for CO, SO_2, and lead, so there are no attainment plans for those pollutants.

Control measures outlined in the ozone plans focus primarily on control of stationary and indirect sources such as housing and commercial developments that may generate substantial vehicle trips during operations. The primarily source of criteria pollutant emissions generated by the proposed Project would be associated with construction-related activities; operation of the proposed Project would require only occasional use of equipment and generate a small number of vehicle trips required to perform routine maintenance and PV panel washing that is estimated to occur four times per year. Therefore, the proposed Project would not create a permanent substantial source of ozone

precursor emissions, and would not obstruct implementation of the SJVAPCD's ozone attainment plan.

The *2008 $PM_{2.5}$ Plan, 2012 $PM_{2.5}$ Plan, 2015 Plan for the 1997 $PM_{2.5}$ Standard, and 2018 Plan for the $PM_{2.5}$ Standards* focus specifically on $PM_{2.5}$, although the control strategies from previous PM_{10} plans (particularly those related to fugitive dust control) have already improved the SJVAB ambient $PM_{2.5}$ levels. Therefore, because fugitive dust controls continue to be addressed in the PM_{10} plan, the plans contain a comprehensive list of strict regulatory and incentive-based measures to reduce directly-emitted $PM_{2.5}$ and precursor emissions. However, as indicated in Table AQ-4, where emissions are quantified with respect to cumulative increases in criteria air pollutants in response to item b), the Project would result in $PM_{2.5}$ emissions from those types of sources that would be well below significance thresholds established by SJVAPCD, with the vast majority of $PM_{2.5}$ emissions associated with the Project arising from the $PM_{2.5}$ component of fugitive dust.

The Air District has determined that projects with emissions below the thresholds of significance for criteria pollutants would not conflict or obstruct implementation of the Air District's air quality plan (SJVAPCD, 2015b). As discussed below with respect to item b), unmitigated emissions during construction-related activities would not exceed the Air District significance thresholds. The Project would be required to comply with applicable Air District rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and Rule 9510 (Indirect Source Review), further reducing Project-related emissions.

Table AQ-1 contains control measures that the Applicant would be required to implement during Project construction activities pursuant to Rule 8021 of Regulation VIII, *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities*.

As the Project would be regulated by applicable Air District rules which would ensure compliance with Air District's air quality plan, the Project therefore would not obstruct implementation of the plan. As such, a less than significant impact would result relative to this item.

TABLE AQ-1
SJVAPCD RULE 8021 MEASURES APPLICABLE TO THE PROJECT

No.	Measure
A1	Pre-water site sufficient to limit visible dust emissions to 20 percent opacity
A2	Phase work to reduce the amount of disturbed surface area at any one time
B1	Apply water or chemical/organic stabilizers/suppressants sufficient to limit visible dust emissions to 20 percent opacity; or
B2	Construct and maintain wind barriers sufficient to limit visible dust emissions to 20 percent opacity. If using wind barriers, control measure B1 above shall also be implemented.
B3	Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit visible dust emissions to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
C.1	Restrict vehicular access to the area.
C.2	Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.
5.3.1	An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
5.3.2	An owner/operator shall post speed limit signs that meet state and federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
5.4.1	Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever visible dust emissions exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
5.4.2	Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer prior to the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the Air Pollution Control Officer has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the Air Pollution Control Officer within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity.
6.3.3	The Dust Control Plan shall describe all fugitive dust control measures to be implemented before, during, and after any dust generating activity.
6.3.4	A Dust Control Plan shall contain all the [administrative] information described in Section 6.3.6 of this rule. The Air Pollution Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan within 30 days of plan submittal. A Dust Control Plan is deemed automatically approved if, after 30 days following receipt by the District, the District does not provide any comments to the owner/operator regarding the Dust Control Plan.

SOURCE: SJVAPCD 2004

b) ***Less than Significant.*** To determine the significance of proposed Project impacts with respect to net increases of criteria pollutants for which the project region is non-attainment, proposed Project construction- and operation-related activities emissions were estimated and compared to significance thresholds found in the Air District's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) to determine the significance of the impacts (SJVAPCD, 2015).

The Air Basin is currently designated as non-attainment for the 1-hour state ozone standard as well as for the federal and state 8-hour standards. Additionally, the Air Basin is designated as non-attainment for the state 24-hour and annual arithmetic mean PM_{10} standards, as well as the state annual arithmetic mean and the national 24-hour $PM_{2.5}$ standards. See **Table AQ-2** for designations and classifications of all criteria pollutants.

TABLE AQ-2
SJVAPCD ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – one hour	No Federal Standard[1]	Nonattainment/Severe
Ozone – eight hour	Nonattainment/Extreme[2]	Nonattainment
PM_{10}	Attainment[3]	Nonattainment
$PM_{2.5}$	Nonattainment[4]	Nonattainment
CO	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Vinyl Chloride	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

1 Effective June 15, 2005, the U.S. EPA revoked the federal 1-hour ozone standard, including associated designations and classifications. However, EPA had previously classified the SJVAB as extreme nonattainment for this standard. Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

2 Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010)

3 On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM_{10} National Ambient Air Quality Standard (NAAQS) and approved the PM_{10} Maintenance Plan.

4 The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

Source: San Joaquin Valley Unified Air Pollution Control District. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm. Accessed June 2018.

The contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality

conditions. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.

The majority of construction-related activities emissions would be generated on-site due to the use of heavy-duty off-road equipment (such as backhoes, bulldozers, graders, front loaders, dump trucks, and cranes) for site preparation, construction of access roads, installation of the solar array, and construction of the inverter sites and substations. Exhaust emissions also would be generated by construction-related worker daily commutes and by heavy-duty diesel truck trips. Criteria pollutant and precursor exhaust emissions from construction-related equipment and vehicles would incrementally add to the regional atmospheric loading of these pollutants during construction-related activities of the proposed Project. Construction-related activities of the proposed Project is assumed to begin in 2020 and be completed over an 11-month period.

The CalEEMod model (version 2016.3.2) was used to quantify annual construction-related activities ROG, NO_X, CO, SO_2, $PM_{2.5}$ and PM_{10} emissions from off-road equipment, haul trucks, on-road worker vehicle emissions, and vendor delivery trips. Since CalEEMod does not contain a Solar Array Land use type, a user defined industrial land use type was used to estimate on-site construction emissions. Construction phasing and off-road equipment estimates were based on information provided by the Project applicant. The annual construction-related emissions can be found in **Table AQ-3**. Modeling outputs can be found in Appendix A.

As shown in **Table AQ-3**, estimated unmitigated construction-related emissions associated with the proposed Project would not exceed the annual SJVAPCD thresholds of significance for PM_{10}, ROG, NOx, CO, SO_2, and $PM_{2.5}$. Therefore, Project construction would result in a less than significant impact and no mitigation is required. See item c) for mitigation required due to emissions of toxic air contaminants.

Because emissions during Project decommissioning-related activities are conservatively considered to be equal to those during construction-related activities, and also would occur in an assumed approximately 35-year time frame when construction equipment fleet is expected to be substantially cleaner, emissions from decommissioning also would be less than significant.

TABLE AQ-3
TOTAL COMBINED PROJECT CONSTRUCTION EMISSIONS

Construction Year	Estimated Emissions, unmitigated tons per year					
	ROG	NO_X	CO	SO_2	Total PM_{10}	Total $PM_{2.5}$
2020	0.68	7.6	5.3	0.01	0.69	0.44
SJVAPCD Thresholds	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

SOURCE: ESA, 2019 (Appendix A)

Implementation of the proposed Project would result in a renewable energy resource that would generate no direct emissions of criteria air pollutants. Indirect on- and off-site emissions of criteria

pollutants associated with proposed Project operation would be generated as a result of employee trips related to maintenance and periodic PV panel washing activities. The proposed Project site would be monitored remotely 24-hours a day, seven days a week. Visits to the site for panel washing would occur approximately four times a year and generate up to 1,600 vehicle trips annually; visits for emergency purposes/upset events would occur infrequently (i.e., only a few times per year as needed).

As summarized in **Table AQ-4**, operation and maintenance of the proposed Project would generate unmitigated criteria pollutant air emissions that would be below the SJVAPCD significance thresholds.

According to the Air District's GAMAQI, a project would be considered to contribute considerably to a significant cumulative impact if it would result in an increase in ROG, NO_x, SO_x, CO, PM_{10}, or $PM_{2.5}$ of more than its respective significance thresholds (SJVAPCD, 2015). As presented in **Table AQ-3** and **Table AQ-4**, proposed Project construction- and operation-related activities emissions would not exceed the annual SJVAPCD thresholds of significance for ROG, NO_x, SO_x, CO, PM_{10}, and $PM_{2.5}$. Therefore, operational emissions would result in a less than significant impact with respect to net increases of criteria pollutants for which the project region is non-attainment.

TABLE AQ-4
OPERATION AND MAINTENANCE EMISSIONS ESTIMATES

Estimated Emissions	Estimated Emissions, unmitigated tons per year					
	ROG	**NO_x**	**SO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Total	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SJVAPCD Thresholds (tons per year)	10	10	27	100	15	15
Exceedance of Threshold?	No	No	No	No	No	No

SOURCE: ESA, 2019 (Appendix A)

c) ***Less than Significant.*** Diesel particulate matter (DPM) represents the primary toxic air contaminants (TAC) of concern associated with the proposed Project. DPM emissions are primarily the result of the operation of internal combustion engines in equipment (e.g., loaders, backhoes, and cranes, as well as haul trucks) commonly associated with construction-related activities. Since activities associated with the operation-related activities of the proposed Project would result in short-term, temporary, and intermittent use of mobile or stationary sources of DPM (e.g., maintenance workers driving to and from the Project site, and the occupational use of off-road equipment to move equipment), operation-related activities of the proposed Project would not expose nearby sensitive receptors to DPM emissions that would result in a health risk. Therefore, health risks associated only with proposed Project construction-related activities is evaluated below.

The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to the State of California Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments (which determine the exposure of sensitive receptors to TAC emissions), should be based on 9, 30, and/or 70-year exposure periods when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects. However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the Project, unless the activities occur for less than 6-months. Activities that would last more than 2-months, but less than 6 months, are recommended to be evaluated as if they would last for 6-months. The OEHHA does not recommend assessing cancer risk for projects lasting less than 2-months near the maximum exposed individual resident (MEIR) (OEHHA, 2015). Since construction-related activities of the proposed Project would occur over an 8- to 12-month period and the nearest sensitive receptor is located within 200 feet from the proposed Project's southern boundary, the proposed Project has the potential to temporarily and intermittently expose off-site sensitive receptors to increased criteria pollutant emission concentrations from diesel powered construction-related equipment during the short-term, temporary construction-related phase.

The Air District recommends conducting a screening analysis for projects that have the potential to expose sensitive receptors to TAC emissions (e.g. DPM during project construction-related activities) that could pose a significance health risk. The SJVAPCD has devolved a prioritization tool to evaluate whether a Health Risk Assessment (HRA) should be prepared, which is based on the California Air Pollution Control Officers Association's (CAPCOA) latest methodology and OEHHA guidance. According to the Air District guidance, projects that obtain a prioritization score of 10 or more is considered to be potentially significant and an HRA should would be required for the project.

The Air District's prioritization screening tool was used to evaluate the potential health risks during proposed Project construction-related activities. The result of the analysis can be found in **Table AQ-5**, which is based on an emission rate of 623 pounds per year of on-site PM_{10} exhaust[1]. Modeling outputs can be found in Appendix A. As shown in **Table AQ-4**, residences within 500 meters (i.e., 1,640 feet) would result in a score greater than 10 under unmitigated conditions, which is the maximum allowed by the Air District.

[1] This emission rate is the sum of all on-site PM10 exhaust emissions from each construction phase for the unmitigated CalEEMod output file in Appendix A. Construction equipment operations assume 5 days per week and the number of hours per day of each equipment as provided by the applicant.

TABLE AQ-5
PROJECT CONSTRUCTION PRIORITIZATION SCORE[1]

Receptor Proximity (m)	Unmitigated Max Score	Mitigated Max Score
0 < R < 100	1,440	86
100 < R < 250	360	22
250 < R < 500	58	4
500 < R < 1,000	16	1

Notes:
1. Prioritization score is based on an annual emission rate of 623 pounds per year emission rate, see Appendix A for modeling details.
Source: SJVAPCD, 2018b; ESA, 2019

The operation of each piece of equipment within the proposed Project site would not be constant throughout the day and all the equipment would not operate concurrently at the same location of the proposed Project construction-related area. To quantify the maximum prioritization score, the receptor proximity is based on the distance between the center of the proposed Project construction-related area and the nearest sensitive receptor, which equates to 420 meters (i.e., 1,378 feet). Using the Air District's periodization tool, annual emission rate of 623 pounds per year of PM_{10} exhaust and a receptor proximity distance of 420 meters, the proposed Project would obtain a score of 58, which would exceed the Air District's allowed score of 10. Therefore, emissions from construction-related activities of the proposed Project could expose nearby sensitive receptor to DPM that could result in a significant health risk. However, implementation of **Mitigation Measure AQ-1**, would reduce the max score to below 10 (see **Table AQ-5**) by requiring the proposed Project applicant to use Tier 4 engines for all off-road construction equipment during project construction-related activities. Tier 4 engines use advanced engine controls and sensors that significantly reduce engine emissions on all four constituents (NOx, HC, CO and PM). The use of Tier 4 engines would reduce PM_{10} emissions generated by off-road equipment. Therefore, with implementation of **Mitigation Measure AQ-1**, Construction-related activities of the proposed Project would result in less than significant construction-related health risks because the maximum health risk score for the nearest residence would be below 10 after mitigation.

> **Mitigation Measure AQ-1: Engine Standards for Off-Road Equipment.** In order to reduce the impact of PM_{10} off-road equipment exhaust emissions during construction-related activities, applicant shall ensure that construction contracts stipulate that all off-road diesel-powered equipment used will be equipped with USEPA Tier 4 or cleaner engines, except for specialized equipment in which an USEPA Tier 4 engine is not available. In lieu of Tier 4 engines, project equipment can incorporate retrofits such that emissions reductions achieve equal to that of the Tier 4 engines at a minimum. The construction contractor shall submit a detailed list of the equipment fleet that demonstrates achievement of this mitigation measure to Tulare County Resource Management Agency Planning Branch for approval prior to receiving Notice to Proceed.

d) ***Less than Significant.*** Operation of the proposed Project would not create other emissions such as odors. However, proposed Project construction-related activities would include fuels and other odor sources, such as diesel equipment, which could result in the creation of objectionable odors. Since construction-related activities would be short-term, temporary, and spatially dispersed (i.e.,

intermittent), and occur in generally rural areas, these activities would not affect a substantial number of people. Therefore, other emissions (such as odors) generated by construction-related activities of the Project would result in a less than significant impact.

References

California Emissions Estimator Model (CalEEMod), version 2016.3.2. Available: http://www.caleemod.com.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2013. *2013 Plan for the Revoked 1-Hour Ozone Standard*. Available: http://www.valleyair.org/air_quality_plans/OzoneOne HourPlan2013/AdoptedPlan.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2015b. *Final Draft: Guidance for Assessing and Mitigating Air Quality Impacts*. Available: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2016a. *2016 Plan for the 2008 8-Hour Ozone Standard*. Available: http://www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2007. *2007 Ozone Plan*. Available: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/2007_8HourOzone_ CompletePlan.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2008. *2008 PM2.5 Plan*. Available: http://www.valleyair.org/Air_Quality_Plans/AQ_Final_Adopted_PM25_2008.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2012. *2012 PM2.5 Plan*. Available: http://www.valleyair.org/Air_Quality_Plans/PM25Plans2012.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2015a. *2015 Plan for the 1997 PM2.5 Standard*. Available: http://www.valleyair.org/Air_Quality_Plans/PM25Plans2015.htm

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2016b. *2016 Moderate Area Plan for the 2012 PM2.5 Standard*. Available: http://www.valleyair.org/Air_Quality_Plans/PM25Plans2016.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2018a. *2018 Plan for the 2012 PM2.5 Standard*. Available: http://valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2018b. *Prioritization Calculator*. Available: http://www.valleyair.org/transportation/ceqa_idx.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2019. *Ambient Air Quality Standards & Valley Attainment Status*. Available at: http://www.valleyair.org/aqinfo/attainment.htm.

Office of Environmental Health Hazard Assessment, 2015. Guidance Manual for Preparation of Health Risk Assessments. February 2015.

2.4 Biological Resources

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	BIOLOGICAL RESOURCES — Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d)	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?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

Biological resources that could be impacted by the Project were identified through a review of relevant literature, occurrence databases, and a reconnaissance-level biological survey. The literature review included information available in peer-reviewed journals, standard reference materials, and relevant databases on sensitive resource occurrences including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2017), the U.S. Fish and Wildlife Service (USFWS) official species list (USFWS, 2017), and the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* Rare Plant Rankings (CNPS, 2017). Other sources of information reviewed include aerial photographs, topographic maps, and Project plans. Biological resources evaluated include sensitive habitats, including potentially jurisdictional features; special-status plant and wildlife species; and potential for wildlife movement corridors. Results of this research are detailed in the Biological Resources Technical Report (BRTR) for the Deer Creek Solar I Project prepared by ESA (see Appendix B).

This section evaluates biological resources within the Project site and a study area with a five-mile radius, and the associated regulatory framework. CDFW (2018) indicated that San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), vernal pool fairy shrimp (*Branchinecta lynchi*), tri-colored blackbird (*Agelaius tricolor*), American badger (*Taxidea taxus*), San Joaquin adobe sunburst (*Pseudobahia*

peirsonii), and San Joaquin woolly-threads (*Monolopia congdonii*) were known to occur in the vicinity of the Project (CDFW, 2018). The potential for these species to occur is evaluated below.

a) ***Less than Significant with Mitigation.*** The wildlife habitats present in the Project site are listed in **Table BIO-1**.

TABLE BIO-1
HABITAT TYPES ON THE DEER CREEK SOLAR I PROJECT SITE

Habitat Type	Approximate Area
Agricultural (annual crops)	282.91 acres
Abandoned orchard (orchard)	84.68 acres
Developed	1.64 acres
Total	369.23 acres

The study area includes a barn area to the east. Paved roadways surround the Project site to the east, west, and south and unpaved dirt roadways are located within the Project site.

Agricultural use, including fields and orchards, are the dominant land cover types in the study area, which consists of actively farmed and tilled lands. The entire 370-acre Project site was in cultivation under dryland grain and seed crops at time of the field review, with some areas in rotation between crop plantings. Some sections of the agricultural field consisted of tilled bare soil. The orchard trees observed on site were previously harvested plum trees. Orchard, vineyard, and other dryland grain and seed crops were adjacent to and in the vicinity of the Project site.

Agricultural fields have foraging habitat value for some wildlife species such as red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and other raptors. Orchard lands within and adjacent to the Project site provide potential nesting habitat for a number of common songbird species such as northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus)*, and mourning dove (*Zenaida macroura*).

Potentially Affect Listed and Proposed Species

A list of special-status plant and animal species that have the potential to occur within the study area was compiled in the BRTR (see Appendix B) based on data in the CNDDB (CDFW, 2017), CNPS Inventory of Rare and Endangered Plants (CNPS, 2017), the USFWS List of Federal Endangered and Threatened Species that may be Affected by the Deer Creek Solar I Project (USFWS, 2017), and the CDFW comment letter on the Deer Creek Solar I Project (CDFW, 2018).

Special-Status Plant Species and Natural Communities

As a result of the continuous agricultural activities associated with the existing agricultural uses (e.g., high level of disturbance from disking, planting, harvesting, and crop rotations, etc.), the Project site does not contain suitable habitat for special-status plant species. Additionally, there is no critical habitat for special-status plants mapped within or adjacent to the Project site (USFWS, 2017).

Special-Status Wildlife Species

No critical habitat for any wildlife species is mapped within or adjacent to the Project site (USFWS, 2017). CDFW identified the state and federally listed Tipton kangaroo rat as having potential to

occur on-site, but, at the site-specific level, this species is unlikely to occur due to a lack of undisturbed grassland and shrubland habitat, and the lack of extensive small mammal burrow complexes (BRTR, Appendix B).

Five special-status wildlife species were identified as having potential to occur within the Project site: western burrowing owl, Swainson's hawk, loggerhead shrike, San Joaquin kit fox, and American badger. None of these special-status species were observed during the biological survey. The Project site provides low quality burrowing or nesting habitat due to frequent disking, but provides suitable foraging habitat for predators of gophers and other rodents that inhabit agricultural fields. Suitable habitat exists within the immediate vicinity of the Project site as well. The five species are considered to have low-to-moderate potential to occur on the site, as explained in the descriptions below.

San Joaquin kit fox (FE/ST)

The San Joaquin kit fox (*Vulpes macrotis mutica*) was historically widely distributed throughout grassland, scrubland, and wetland communities in the San Joaquin Valley and adjacent low foothills; however, agricultural, urban, and industrial development in the Valley in general, and at the Project site in particular, has led to extensive and continuing loss of native habitat.

Several kit fox occurrences have been reported within five miles of the Project site; however, the most recent occurrence was recorded 18 years ago (in 1991 (CDFW, 2017). Although the agricultural lands on the Project site are regularly tilled and maintained, a few small mammal burrows ranging from 2 to 4 inches in diameter were observed near the abandoned orchard and brush pile, and along the perimeter of the Project site (see BRTR, Photos 1a through 12). A California ground squirrel (*Otospermophilus beecheyi*) burrow complex was observed just outside the perimeter of the Project site. The site showed limited signs of small mammal activity (e.g., rodent scat, recent burrow excavation), indicating the presence of a limited prey base at the site. However, no kit fox individuals or evidence of occupation by kit foxes at any of the burrows were observed during the field survey. In addition, as shown in site photos in the BRTR, the site is subject to large scale agricultural production and managed such that very few California ground squirrels or other prey species are present on-site, and no burrows were identified that were suitable for kit fox habitation. Kit foxes may potentially occur on the Project site on a transient basis; however, little cover, limited denning opportunities, and a limited prey base are present on the site for this species.

American badger (CSC)

In California, American badgers (*Taxidea taxus*) occupy grasslands, savannas, and mountain meadows near the timberline preferentially, though they can be found in deserts as well. They require relatively open, uncultivated ground.

A badger sighting from 1989 is recorded in the CNDDB approximately 3.5 miles north of the Project site (CDFW, 2017). The general absence of larger mammal burrows or signs of badger excavation in the burrows observed on the Project site during the field survey indicates that badgers

are likely absent from the site. There is a low potential for badgers to use the site for occasional foraging.

Because a limited supply of suitable prey species is present on the agricultural land, and the Project site is within the species' ranges, San Joaquin kit fox and American badger have low potential to occur at the Project site during construction-related activities. With the extremely limited number of burrows observed and no rodent individuals observed during the reconnaissance survey, the agricultural land contained within the Project site is considered poor quality habitat for kit fox and badger prey species. This limited supply of prey species makes the likelihood of kit foxes and badgers foraging at the site low. If present during construction-related activities, these activities would have the potential to directly (e.g., through mortality or injury) impact these species if left unmitigated. During operation and maintenance of the facility, there would be a low risk of injury or mortality and both San Joaquin kit fox and American badger would be able to transit the facility and forage during nighttime hours. Additionally, the site would not be subject to regular tilling during operations; hence, prey species are anticipated to become more abundant following construction-related activities. Thus, operation of the facility would have a less than significant impact on these species and would enhance the site's habitat value by establishing a more stable environment for prey species.

Preconstruction clearance surveys and other minimization measures described in **Mitigation Measures BIO-1 through BIO-3** would reduce impacts to San Joaquin kit foxes and American badgers (if present in work areas during construction- or decommissioning-related activities) to a less than significant level. Consistent with the approach defined in the USFWS (2011) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance*, **Mitigation Measures BIO-1 through BIO-3** would protect kit foxes and badgers by identifying and examining potential dens prior to construction- or decommissioning-related activities, and avoiding or excavating burrows to further discourage kit foxes and badgers from denning at the Project site. By providing a worker environmental awareness program training to construction-, decommissioning-, and operations-related staff regarding the San Joaquin kit fox and American badger, all staff will be made aware of their appearance and life history and required measures to protect this species. Implementation of a speed limit will minimize the risk of vehicle strikes to these species during construction-, decommissioning-, and operation-related activities of the facility. Operation of the facility may also foster more opportunities for small mammal activity because there will no longer be any agricultural activities. This increase in small mammal activity has the potential to increase the habitat foraging value of the facility for San Joaquin kit fox and American badger.

Tipton kangaroo rat (SE, FE)

The Tipton kangaroo rat (*Dipodomys nitradoides*) was evaluated for potential to occur within the Project site during a biological resources survey. Tipton kangaroo rat occur in undisturbed grassland, scrubland, or shrubland habitat, often associated with native saltbush plants (*Atriplex* sp.). This species seeks refuge in and depends on extensive burrow complexes. The Project site and surrounding lands are regularly tilled and maintained for agricultural purposes. The small mammal burrows observed at the site were limited in number and location. Due to the lack of undisturbed grassland and shrubland habitat and the lack of extensive small mammal burrow complexes, Tipton kangaroo rats are considered absent from the Project site.

Western burrowing owl (CSC)

The western burrowing owl (*Athene cunicularia*) resides in dry, open grasslands and desert areas. This species occupies burrows for both breeding and roosting and will use burrows excavated by ground squirrels and other small mammals as well as human-made burrows and cavities.

The survey did not identify any burrowing owls on the site; however, signs of small mammal activity was observed at the site. Some of the small mammal burrows identified in the abandoned orchard could provide potential burrow nest locations for this species and there is a low potential for burrowing owls to use this portion of Project site in the future for nesting. California ground squirrels (*Otospermophilus beecheyi*), a host species which excavates burrow complexes, were observed just outside the northern Project boundary. Although no burrowing owls were observed at the Project site, there is a low potential for burrowing owls to move into or adjacent to the Project site because a limited number of small mammal burrows, which may provide potential burrow nest locations, are present. Owl nesting would not occur on the remainder of the site due to frequent disturbance from agricultural-related activities.

Thus, construction-related activities could result in impacts to the species through nest destruction if any burrowing owls moved into the burrows or burrow substitutes. Any adverse impacts, either direct or indirect, to burrowing owls from construction-related activities would be considered significant. Preconstruction clearance surveys and other minimization measures as described in **Mitigation Measures BIO-2** and **BIO-3, BIO-5 and BIO-6**, will reduce impacts to less than significant by identifying if there are any occupied burrows present prior to construction-related activities and avoiding them; or excavating all burrows to further discourage any burrowing owls from nesting at the Project site. By providing a worker environmental awareness program training to construction- and operations-related staff regarding the burrowing owl, all staff will be aware of its general appearance and protective measures for this species. Implementation of a speed limit will minimize the risk of vehicle strikes to this species during construction- and operation-related activities of the facility.

Swainson's hawk (ST)

The Swainson's hawk (*Buteo swainsoni*) breeds in stands with few trees in juniper-sage flats, riparian areas, or oak savannah adjacent to suitable foraging habitat such as grasslands, alfalfa, or grainfields with rodent populations.

No Swainson's hawks were observed during the site survey and the CNDDB did not identify any occurrences within five miles of the Project site (CDFW, 2017) although this species is known to be present in the surrounding region. Artificial structures within the Project site may provide perch sites for Swainson's hawk, but cropland within the Project site provides only marginally suitable foraging habitat for this species due to active cultivation that limits small mammal populations on the site. The presence of small mammal burrows and rodent scat in only a few portions of the site indicate there is an available prey base in the form of gophers and other rodents, but it is limited to very small pockets of undisturbed habitat.

Nest trees in the vicinity of the Project site may provide nest sites for Swainson's hawk and other raptors. However, no trees were located in the Project site except for the orchard trees, which are not considered suitable nest trees. Immediately adjacent to the northern boundary of the Project site there are several large trees that may support Swainson's hawk nests. There are also large trees in the general vicinity (within 0.25-mile) of the Project site. However, no nests have been documented at these locations and none were observed during the reconnaissance survey.

Impacts by the Project on nesting Swainson's hawk may occur should an active nest occur within a 0.25-mile of the Project site during construction-related activities. The Project would also result in minor foraging habitat impacts to the species because the existing grainfield provides a limited prey base of small mammals that presumably will not be present following site development.

Swainson's hawk may forage on the Project site. Despite the active agricultural-related operations, portions of the site provide limited habitat for gophers and other rodents that are prey species. Conversion of this agricultural land to a solar facility would reduce the amount of available foraging habitat and could result in hawks having to search in alternative locations for prey.

Preconstruction clearance surveys and other minimization measures as described in **Mitigation Measures BIO-4** and **BIO-2, BIO-3, and BIO-6** would reduce impacts on Swainson's hawks to a less than significant level by identifying if there are any active nests within 0.5-mile of the Project site and monitoring the nest if one is identified to ensure the nest is not disturbed by construction-related activities. The location of the nest will be flagged and all personnel will be informed of its location.

Loggerhead Shrike (CSC)

Loggerhead shrikes (*Lanius ludovicianus*) occur in abundance in the Central Valley and Central Coast in shrub and open woodland habitat. Shrikes generally forage on the fringes of open habitats where suitable hunting perches are available. The orchard trees and brush pile on the Project site and adjacent orchard lands support potential nesting habitat for the species. Power lines also offer available perches on and near the site. As such, this species has a low potential to occur and/or nest on or near the Project site.

Preconstruction clearance surveys and other minimization measures as described in **Mitigation Measures BIO-4** and **BIO-2, BIO-3, and BIO-6** would reduce impacts on loggerhead shrikes to a less than significant level by identifying if there are any active nests within 500 feet of the Project site and monitoring the nest if one is identified to ensure the nest is not disturbed by construction-related activities. The location of the nest will be flagged and all personnel will be informed of its location so the nest is not accidentally removed by restricting how close construction-related personnel can get to them.

Nesting birds

Artificial structures such as transmission poles near the Project site may provide perch sites for raptors. Orchard trees could provide nest sites for songbirds including loggerhead shrike. Should a

songbird nest near active construction-related activities, activities within approximately 250 feet of nest could disturb the nesting birds and may result in nest disturbance or abandonment.

Depending on the timing of construction-related activities, the proposed Project could result in the direct loss of an active nest of special-status bird species, the abandonment of a nest by adult birds during that year's nesting season, or the direct loss of individual nests of special-status species, either ground nesters or birds nesting on utility poles, orchard trees, or other nearby trees.

Preconstruction clearance surveys, nest surveys, and other minimization measures as described in **Mitigation Measures BIO-4** and **BIO-2, BIO-3,** and **BIO-6** would reduce impacts on Swainson's hawks or other special status birds to a less than significant level by identifying if there are any active nests within 500 feet of the Project site (0.5-mile for Swainson's hawk) and monitoring nests if identified to ensure they are not disturbed by construction-related activities. The location of nests within the buffer zones will be flagged and all personnel will be informed of their locations to restrict construction-related access to them.

Avian collisions

In addition to the potential direct impacts described above, avian species are susceptible to collisions with power lines (APLIC 2012). Raptors are generally understood to have the ability to avoid obstacles; however, their collision risk increases when they are engaged in activities such as territorial defense and pursuit of prey (APLIC 2012). Although Tulare County contains several high-voltage transmission lines, the Project would introduce only an additional connection to the existing power line along East Terra Bella Avenue that crosses to the south. As such, the Project would not result in a significant increase in the number of potential collisions into overhead power lines.

As identified in the Project Description, project adherence to current Avian Powerline Interaction Committee (APLIC 2006; 2012) design standards for overhead powerlines and associated structures will minimize the potential for avian injury and mortality from collisions and electrocution with such facilities. Therefore, this impact would be less than significant, with no mitigation required.

Studies (e.g., Dietsch, 2016) have provide mixed results regarding the potential adverse impacts of solar farms on avian/migratory birds. As it is difficult to estimate with certainty whether the number of avian mortalities is more a result of the solar facility or the same as if the facility was never constructed, enough uncertainty remains to suggest that The incidental loss of special status bird species due to collision-related injury or mortality could be a significant impact if substantial adverse effects occurred at the population level, although such risk is low.

To ensure that risk of collision with solar panels is reduced to the extent feasible for special-status bird species, **Mitigation Measure BIO-6** requires the implementation of measures to reduce this risk to a less than significant level. This impact would be reduced through the implementation of a Collision Reduction Strategy that employs the use of bird deterrence devices to deter birds from colliding with the facility's infrastructure, surveys to determine which site treatment methods best deter birds, implementation of a monitoring program to document the effectiveness of treatments,

and data reporting to CDFW and USFWS to share the results of site treatments in reducing bird impacts.

Implementation of the following mitigation measures would avoid and minimize project impacts to regulated biological resources:

Mitigation Measure BIO-1 Pre-Construction Surveys and Occurrence: Ensure that active dens and burrows of special-status mammal species such as the San Joaquin kit fox and American badger are not disturbed during construction- or decommissioning-related activities. The following measures, derived from the USFWS (2011) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance*,[2] shall be implemented to avoid impacts on active burrows and dens:

- Within 30 days of initiation of construction- or decommissioning-related activities, a qualified wildlife biologist shall conduct a preconstruction survey to assess the status of mammal burrows identified within 250 feet of the construction site where access is available.

- If occupied dens or burrows are found during the preconstruction survey, a no-disturbance buffer shall be created around the occupied den or burrow until it is determined that they are no longer occupied. Excavation of any potential SJKF dens shall be prohibited during breeding and pup-rearing season. Typical buffers include 250 feet from the den or burrow. The size of these buffer zones and types of construction-related activities restricted in these areas could be further modified during construction in coordination with CDFW and USFWS and shall be based on the existing level of noise and human disturbance on the Project site.

- If the preconstruction survey indicates that burrows are unoccupied during the construction- or decommissioning-related period, no further action is required. Burrows within the construction- or decommissioning-related footprint determined to be unoccupied by special-status burrowing wildlife, or that are outside the no-disturbance buffer for occupied dens or burrows, may be excavated.

- If a special-status burrowing mammal chooses to occupy a burrow next to an active construction- or decommissioning-related site, then it is generally considered acclimated to construction-related activities and the no disturbance buffer can be reduced.

- These provisions shall be implemented prior to (i) initial ground-disturbing activities in any area; (ii) restarting ground-disturbing activities in areas where no work has been occurring for 30 days or more; (iii) prior to ground-disturbing O&M activities; and (iv) starting (or restarting) decommissioning activities by walking transects appropriately spaced to obtain 100 percent visual coverage to identify potential dens, scat, tracks, other sign or individuals.

Mitigation Measure BIO-2: Worker Environmental Awareness Program

Prior to the issuance of grading or building permits and for the duration of construction-related activities, all new construction-related workers at the Project site shall attend a

[2] https://www.fws.gov/sacramento/es/survey-protocols-guidelines/Documents/kitfox_standard_rec_2011.pdf

Construction Worker Environmental Awareness Program, developed and presented by an approved qualified biologist. The program shall include information on the life history of the San Joaquin kit fox and describe other special-status wildlife species that may occur on-site, including burrowing owl and Swainson's hawk.

The program shall also discuss each species' legal protection status, the definition of "take" under the federal and state Endangered Species Acts, measures the site operator is implementing to protect the species, reporting requirements, specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the federal or state Endangered Species Act. An acknowledgement form signed by each worker indicating that environmental training has been completed would be kept on record. Construction- or decommissioning-related workers shall not be permitted to operate equipment within the construction- or decommissioning-related areas unless they have attended the training and are wearing hard hats with the required sticker. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Tulare County Resource Agency (Public Works and Planning Branches).

Mitigation Measure BIO-3: General Measures for the Avoidance and Protection of Biological Resources

During construction-, operation-, and decommissioning-related activities of the facility, the operator and/or contractor shall implement the following general avoidance and protective measures to protect San Joaquin kit fox and other special-status wildlife species:

- All proposed impact areas, including solar fields, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction- or decommissioning-related activities to avoid special-status species where possible. Construction- or decommissioning-related activities outside of the impact zone shall be avoided.

- The use of rodenticides on the Project site is prohibited.

- The operator shall limit the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas.

- Within 30 days of initiation of construction- or decommissioning-related activities, a qualified biologist shall walk the Project site plus a 50-foot perimeter buffer for 100 percent visual coverage to (i) identify all burrow openings that have the potential to be used by special-status species; (ii) flag all such burrow openings; (iii) demarcate a 50-foot no-disturbance buffer around each such burrow or burrow complex, using additional flagging, construction tape, or other highly visible material that does not hinder species movement to and from the burrows. Qualified biologists shall be on site during all ground-disturbing activities to monitor the flagged burrows, to ensure the buffer markers are maintained, and that no encroachment is occurring. If such species are found during Project-related activities, all activity within 250 feet of the discovery shall cease until the individual leaves the Project on its own accord or returns to a burrow. Activity within 250 feet of the discovery shall not resume until CDFW and/or USFWS (depending on their respective jurisdictional claims to the species in question) is contacted for guidance regarding additional avoidance measures to be implemented in habitat occupied by the species in question.

- Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices shall be employed to prevent erosion in accordance with the Project's approved Stormwater Pollution Prevention Plan. All detected erosion shall be remedied within two days of discovery or as described in the Stormwater Pollution Prevention Plan.

- To prevent inadvertent entrapment of wildlife during construction- or decommissioning-related activities, all excavated, steep-walled holes or trenches with a 2-foot or greater depth shall be covered with plywood or similar materials at the close of each working day, or provided with one or more escape ramps constructed of earth fill or wooden planks at a gradual slope of 45-degrees or less. Before such holes or trenches are filled, they shall be thoroughly inspected by the approved biological monitor for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a listed species is trapped, the USFWS and/or CDFW shall be contacted immediately.

- All uncovered construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the Lead Biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a qualified biologist.

- Vehicles and equipment parked on the sites shall have the ground beneath the vehicle or equipment inspected for the presence of wildlife prior to moving.

- Vehicular traffic shall use existing routes of travel. Cross country vehicle and equipment use outside of the Project properties shall be prohibited.

- A speed limit of 20 miles per hour shall be enforced within all construction- or decommissioning-related areas and within the Project fence line during operation of the facility.

- A long-term trash abatement program shall be established for construction-, decommissioning-, and operations-related activities. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to wildlife such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs.

- Construction- or decommissioning-related workers shall be prohibited from bringing pets and firearms and from feeding wildlife.

- Intentional killing or collection of any wildlife species shall be prohibited. All Project-related personnel shall be informed of potential legal consequences should such an event occur.

Mitigation Measure BIO-4: Nesting Bird and Raptor Survey. Ensure that active nests of raptors and other special-status nesting birds are not disturbed during construction-related activities. If active construction-related work (i.e., grading and site mobilization) is scheduled to take place outside of the avian nesting season (September 1 through January 31), no action would be required to protect nesting birds. If the start of construction

activities occurs during the avian nesting season (February 1 through August 31), the following measures shall be implemented to avoid impacts on nesting raptors and other protected birds:

- Within 7 days of construction-related activities, a qualified wildlife biologist shall conduct a preconstruction survey of all potential nesting habitat within 500 feet for nesting birds and raptors and 0.5-mile for Swainson's hawk of the Deer Creek Solar I Project site where access is available.

- If active nests are found during the preconstruction survey, a no-disturbance buffer shall be created around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. Typical buffers include 0.5-mile for Swainson's hawk, 500 feet for raptors, and 250 feet for other nesting birds (e.g., passerine birds). The size of these buffer zones and types of construction-related activities restricted in these areas could be further modified during construction-related activities in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the Project site.

- If the preconstruction survey indicates that nests are inactive or potential habitat is unoccupied during the construction-related period, no further action is required. Trees and shrubs within the construction area footprint determined to be unoccupied by nesting birds, or that are outside the no-disturbance buffer for active nests, could be removed.

- If construction-related activities commence during the nonbreeding season and continues into the breeding season, most songbirds that choose to nest next to active construction sites are generally considered to acclimate to construction-related activities, though nest abandonment may occur in some instances.

Mitigation Measure BIO-5: Ensure that active nest burrows of western burrowing owl are not disturbed during construction-related activities. The following measures shall be implemented to avoid impacts on active nest burrows:

- Within 14 days of construction-related activities, a qualified wildlife biologist shall conduct a preconstruction survey following the survey protocol provided in the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) to assess the status of potential nest burrows and culverts identified within 500 feet of the construction site where access is available.

- If occupied nest locations are found during the preconstruction survey, a no-disturbance buffer shall be created around the occupied burrow or culvert until it is determined that they are no longer occupied. Typical buffers include 500 feet from the nest burrow. The size of these buffer zones and types of construction-related activities restricted in these areas could be further modified during construction-related activities in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the Project site.

- If the preconstruction survey indicates that burrows are unoccupied during the construction-related period, no further action is required. Burrows within the construction area footprint determined to be unoccupied by burrowing owls, or that are outside the no-disturbance buffer for occupied burrows, may be excavated.

- If a burrowing owl chooses to occupy a burrow next to an active construction site, then it is generally considered acclimated to construction-related activities and the no disturbance buffer can be reduced.

Mitigation Measure BIO-6: Reduce Bird Collision Risk through a Collision Reduction Strategy

Prior to the issuance of a construction permit, the Applicant shall retain a qualified biologist to prepare a Collision Reduction Strategy in coordination with the County. The Collision Reduction Strategy shall consider the methods and effectiveness of other current avian deterrent studies (e.g., for the Tranquillity Solar Project) and applicable literature in proposing bird deterrence treatments. At a minimum, the Collision Reduction Strategy shall include the following treatments:

1. Within 30 days after project commissioning, avian deterrence materials will be installed in blocks to achieve coverage of 5 to 10 percent of total area within the Solar Facility on a 3-month trial basis. Up to four different avian deterrence treatments shall be installed in each of block of solar panels; and a "control" (no treatment) block shall also be defined.

2. Avian deterrence methods within the treatment blocks shall include the use of visual deterrents or cues to encourage bird avoidance. These deterrents employ materials that are both reflective and highly visible, such as materials that reflect ambient light and/or are stimulated by air movement. The effect of installation will create the visual impression of continuous and varied movement. Suitable materials can include holographic reflective tape, strips of reflective tape around panels, bird flight diverters, or other treatments (approved by the County).

3. Following deterrence installation, the study area will be regularly and systematically surveyed by a qualified biologist(s) for a 3-month period to examine the effectiveness of visual deterrents in reducing avian attraction and mortality. Field surveys shall occur during the period when avian fatalities are most often reported (e.g., roughly June to October).

4. Avian monitoring shall include detailed record-keeping of bird locations and species, a carcass collection protocol within each treatment area (e.g., twice per week), and avian point count surveys.

5. Monitoring results shall be reported to the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the County. A resulting report shall include a statistical analysis of collected data collected to determine if there is a difference in avian activity and/or behavior between study areas. A final report will be prepared and submitted to the County that evaluates the effectiveness of treatments in changing avian behavior or reducing mortality, and provides recommendations (in coordination with the County) for future monitoring and any adaptive management actions needed.

Mitigation Measure BIO-7: USFWS and CDFW Coordination

The Applicant shall be responsible for compliance with the applicable requirements of the federal Endangered Species Act and the California Endangered Species Act, including obtaining incidental take authorization, if it is determined that "take" will occur.

b) ***No Impact.*** The Project site is situated on nearly flat terrain within a large plot of agricultural land adjacent to and west of State Route 65. The Project area contains few excavated irrigation ditches. These ditches are man-made and are used for seasonal irrigation purposes for growing field row crops. The Aquatic Resources Delineation prepared for the Project (ESA, 2018a; Appendix C) concluded that there are no wetlands and other waters of the U.S. within the Project site. An agricultural ditch in the northern section of the Project site was identified during a query of the National Wetland Inventory. However, this feature is no longer present. No potential jurisdictional features were identified by the Aquatic Resources Delineation at the Project site. No sensitive natural communities occur on the Project site. The Project site does not contain any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations; or by CDFW or USFWS. The nearest riparian habitat is to the northeast along Deer Creek (approximately 800 feet north of the Project site). Therefore, the Project would have no impact on these resources.

c) ***No Impact.*** The Aquatic Resources Delineation prepared for the Project (ESA, 2018a) concluded that there are no wetlands and other waters of the U.S. within the Project site. The only aquatic features identified within the Project site include the small, temporary irrigation ditches graded across portions of the agriculture fields (BRTR, Appendix B). The irrigation ditches would not be considered jurisdictional by the resource agencies because these features are manmade, do not connect, do not connect to natural waterways, do not support native vegetation, and retain irrigation water on-site. The Project site does not contain any features (such as lakes, rivers, or streams) that may be regulated by CDFW under Section 1600 et seq. of the California Fish and Game Code (ESA, 2018b; Appendix D). An agricultural ditch in the northern section of the Project site was identified during a query of the National Wetland Inventory. However, this feature is no longer present. Thus, the Project does not contain any potentially jurisdictional waters and the Project would have no impacts on these resources.

d) ***Less than Significant.*** The Project site is located in a rural area of Tulare County. San Joaquin kit fox individuals are known to occur in islands of natural lands in Tulare County (USFWS 1998), including the foothills six miles east of the Project site. However, the Project site is located outside of these natural lands islands and has no connectivity to them. All major populations and movement corridors for kit fox occur outside of Tulare County. It is possible that kit foxes may venture into the Project site on a transient basis. Based on the absence of on-site fossorial habitat (that is, underground habitat used by animals for protection from predators or for food storage) any potential kit fox presence on the Project site during normal movements would be transitory and unanticipated.

During construction-related activities, kit fox movement across the site would be limited by traffic and other disturbance. Implementation of **Mitigation Measure BIO-3** would reduce impacts from construction-related activities on kit fox movement on-site by restricting vehicular traffic to established access roads, limiting the speed of traffic to 20 mph, and covering all holes and trenches or providing escape ramps for kit foxes that may fall into a hole or trench resulting in a less than significant impact.

Following construction-related activities, perimeter fencing would be installed that would be "wildlife-friendly," employing one of several potential designs that would allow San Joaquin kit

fox to pass through the fence while still providing for solar facility security and exclusion of other unwanted species (i.e., large domestic dogs and coyotes). To facilitate kit fox movement, the fence material would be raised 4 to 7 inches above the ground for the entire length of the fencing to allow movement in and out of the fence line. Alternatively, standard deer fencing installed with the larger openings at the bottom may also be used. Because the larger openings measure 4 inches or greater, there is no need to lift the fencing material off the ground. If chain link fencing material is proposed for use inside of the perimeter fencing, the interior fencing shall be installed similarly to that described for the perimeter fencing, or would use a potential alternative entailing the installation of plastic slats from the ground to at least 4 feet above the ground for the entire length of the fence. Thus, kit fox movement and the movements of any other terrestrial wildlife, including American badger, from Project operation would result in a less than significant impact.

The Project site is located in the vicinity of a significant avian migration route known as the Pacific Flyway which covers the western quarter of the United States, including all of California. However, although some individual birds may be affected, the Project is not anticipated to substantially interfere with the Pacific Flyway itself. The Pacific Flyway is expansive and the number of birds migrating through and into California reaches the hundreds of millions. The impacts to migratory birds from the Project, which is at such a small scale relative to the large geographic scope of the vast Pacific Flyway, would be less than significant. Although Deer Creek is, at its nearest point to the Project, located approximately 500 feet away from the Project site, there are no perennial water features and no corridors for aquatic species within the Project site. In addition, no wildlife nursery sites have been identified near or on the Project site. Accordingly, the Project would not interfere with the movement of any native resident or migratory fish or impede the use of native wildlife nursery sites and would cause no impact regarding these considerations. Thus, as there would be a less than significant impact on wildlife corridors or movement, and no mitigation is required.

e) ***Less than Significant.*** The County has policies and ordinances protecting biological resources, including wetland and riparian areas (Tulare County General Plan Measure ERM-1.4, 1.6); environmentally sensitive areas (Tulare County General Plan Measure ERM-1.2), oak woodlands (Tulare County General Plan Measure ERM-1.12); and open space buffers (Tulare County General Plan Measure ERM-1.8). However, the project would not conflict with any of these local policies or ordinances protecting biological resources, because none of the protected resources are present within the site boundary.

The County also has a policy protecting rare and endangered species (Tulare County General Plan Measure ERM-1.1). The Project site has a potential for rare and endangered species to occur on it, including Swainson's hawk and San Joaquin kit fox. Implementation of preconstruction wildlife surveys, environmental training, and wildlife avoidance and protection measures described in **Mitigation Measures BIO-1** to **BIO-6** would avoid or minimize potential impacts to these species and ensure compliance with General Plan Measure ERM-1.1. Preconstruction wildlife surveys will be performed to confirm the absence of special-status species on the site prior to initiation of construction-related activities. If special-status species are identified, their location will be clearly demarcated for avoidance with proper avoidance buffers in place. The environmental training will make all construction-, operations, and maintenance-related staff aware of the appearance and ecology of the special-status species and inform the need for protective measures for each species.

Therefore, the facility would not conflict with General Plan Measure ERM-1.1 and would result in a less than significant impact.

f) ***No Impact.*** The project would not be constructed within the boundaries of any adopted HCP or NCCP. The closest HCP is the Woodville Solid Waste Site Expansion Habitat Conservation Plan, which governs an area located more than 12 miles northwest of the Project site. There are no adopted NCCPs in Tulare County or in any of the adjacent counties, and no other approved local, regional, or state habitat conservation plans. Given the Project site is outside the jurisdiction of the closest adopted HCP and the absence of any other adopted conservation plans, the project would result in no impact on this item.

References

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C and Sacramento, CA.

Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, D.C. http://www.aplic.org/uploads/files/11218/Reducing_Avian_Collisions_2012watermarkLR.pdf

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. State of California, Natural Resources Agency. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2017. California Natural Diversity Database. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA, November 2017.

California Department of Fish and Wildlife (CDFW). 2018. Early Consultation Notice Special Use Permit No. 18-011, Deer Creek Solar I. California Department of Fish and Wildlife, Central Region, Fresno, CA, March 2018.

Dietsch. T. 2016. Update on Solar-Avian Interactions in Southern California. May 10. http://blmsolar.anl.gov/program/avian-solar/docs/Avian-Solar_CWG_May_2016_Workshop_Slides.pdf

Environmental Science Associates (ESA). 2018a. Deer Creek Solar I Project, Tulare County, California, Aquatic Resources Delineation Report. July 2018.

ESA. 2018b. Features that may be Subject to Section 1600 et seq. of Fish and Game Code within Deer Creek Solar I Project, Tulare County, California. October 2018.

Germano, D. J., and D. F. Williams. 1992. Recovering blunt-nosed leopard lizards: past efforts, present knowledge, and future opportunities. Transaction of the Western Section of The Wildlife Society 28:38-47.

Halstead, B.J., G. D. Wylie, and M. L. Casazza. 2015. Literature Review of Giant Gartersnake (*Thamnophis gigas*) Biology and Conservation. Prepared by United State Geological Survey in cooperation with the California Department of Water Resources, Open File Report 2015-1150.

Jennings, M. R., and M. P. Hayes, 1994. Amphibian and reptile species of special concern in California. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. pp. 225, 1994.

Miles, S. R. and C. B. Goudey, 1998. Ecological Subregions of California: Section and Subsection Descriptions. U.S. Department of Agriculture, U.S. Forest Service, Pacific Southwest Region, San Francisco, CA, 1998.

National Forensics Laboratory (NFL), 2014, Avian Mortality at Solar Energy Facilities in Southern California, A preliminary Analysis. https://alternativeenergy.procon.org/sourcefiles/avian-mortality-solar-energy-ivanpah-apr-2014.pdf

Stebbins, R. C., 2003 A Field Guide to Western Reptiles and Amphibians. Third Edition. Houghton Mifflin Company, Boston. 533 pp., 2003.

Stebbins, R. C. and S.M. McGinnis, 2012. A Field Guide to Amphibians and Reptiles of California. Revised Edition. University of California Press, Berkeley, Los Angeles, London. 300-301, 364-366, 374 pp., 2010.

Tulare County. 2012. The Tulare County General Plan 2012. http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/General%20Plan%202012.pdf

U.S. Fish and Wildlife Service. 1985. Blunt-nosed leopard lizard revised recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon, 85 pp.

USFWS. 1998. Recovery plan for upland species of the San Joaquin Valley, California, U.S. Department of the Interior, Fish and Wildlife Service, Region 1, Portland, OR, 1998.

USFWS. 2011. Standardized Recommendations for Protection of the Endangered San Joaquin kit fox Prior to or During Ground disturbance. Prepared by the Sacramento Fish and Wildlife Office, January 2011.

USFWS. 2017a. Official species list letter entitled, "List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project." Consultation code: 08ESMF00-2018-SLI-0452, Deer Creek Solar I Project, November 2017.

USFWS. 2017b. Deer Creek Solar I Project, IPaC Resources Report. Generated October, 2017.

Zeiner, D.C., W.F. Laudenslayer, Jr., and K.E. Mayer, 1988. California's Wildlife, Vol. I-III, California Department of Fish and Game, 1988.

2.5 Cultural Resources

Issues (and Supporting Information Sources):		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	CULTURAL RESOURCES — Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

a) ***No Impact.*** CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register), or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including those that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed at impact b).

As a result of a records search, background research, and a site survey, it was confirmed that no historical resources are present on the Project site (ESA, 2018). As such, there are no architectural or structural resources on the Project site that qualify as historical resources, as defined in CEQA Guidelines Section 15064.5; therefore, the Project would result in no impact to any historical resources, as defined in CEQA Guidelines Section 15064.5.

b) ***Less than Significant with Mitigation***. A significant impact would occur if a project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Through a records search and background research at the Northwest Information Center of the California Historical Resources Information System, a geologic analysis, and a surface survey, no archaeological resources were identified on the Project site. However, there is a low potential that unknown archaeological resources could be discovered during Project implementation (ESA, 2018).

If a previously unrecorded archaeological resource were identified during Project ground disturbing activities and was found to qualify as an historical resource per CEQA Guidelines Section 15064.5 or a unique archaeological resource, as defined in PRC Section 21083.2(g), any impacts to the resource resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing **Mitigation Measure CUL-1**. **Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources**, by ensuring that work halt in the vicinity of a find until a qualified archaeologist can make an

assessment and provide additional recommendations if necessary, including contacting Native American tribes.

> **Mitigation Measure CUL-1**. **Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources.** If prehistoric or historic-era cultural resources are encountered, all construction-related activities within 50 feet shall be immediately halted and the County of Tulare and the Tule River Indian Tribe should be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, hereafter "qualified archaeologist," should inspect the findings within 24 hours of discovery.
>
> If it is determined that the Project could damage a significant cultural resource, mitigation should be implemented with a preference for preservation in place, consistent with the priorities set forth in CEQA Guidelines Section 15126.4(b)(3). If avoidance is not feasible, a qualified archaeologist should prepare and implement a detailed treatment plan in consultation with the County of Tulare and, for prehistoric resources, the ethnographically associated Native American tribe. If the resource is determined to be a tribal cultural resource, as defined by Public Resources Code 21074, the County of Tulare, in consultation with the ethnographically associated Native American tribe, should, if feasible, minimize significant adverse impacts by avoiding the resource or treating the resource with culturally appropriate dignity, which includes protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

Therefore, implementation of **Mitigation Measure CUL-1** would result in a less than significant impact to this item.

c) ***Less than Significant with Mitigation***. The records search and background research confirmed that no human remains are known to exist in the Project site. Therefore, the proposed Project is not anticipated to impact human remains, including those interred outside of formal cemeteries.

While unlikely, if any previously unknown human remains were encountered during ground disturbing activities, any impacts to the human remains resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing **Mitigation Measure CUL-2**. **Inadvertent Discovery of Human Remains**, by requiring work to halt in the vicinity of a find until the County coroner determines whether the remains are Native American in origin and, if they are, contacting the Native American Heritage Commission.

> **Mitigation Measure CUL-2. Inadvertent Discovery of Human Remains.** In the event of discovery or recognition of any human remains during construction-related activities the provisions of CEQA Guidelines § 15064.5(e) shall be followed and such activities should cease within 50 feet of the find until the Tulare County Coroner has been contacted to determine that no investigation of the cause of death is required. If it is determined that the remains are Native American in origin, the Native American Heritage Commission (NAHC) and the Tule River Indian Tribe will be contacted within 24 hours. The NAHC

will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American. The MLD would, in turn, make recommendations to the County of Tulare for the appropriate means of treating the human remains and any grave goods.

Therefore, implementation of **Mitigation Measure CUL-2** would result in a less than significant impact to this item.

References

ESA, *Deer Creek I Solar Project, Tulare County, California, Cultural Resources Survey Report.* Prepared for Deer Creek Solar I LLC, February 2018.

Northwest Information Center (NWIC), File No. 17-463 California Historical Resources Information System at Sonoma State University, Rohnert Park. On file at ESA, October 10, 2017.

Society of Vertebrate Paleontology (SVP). *Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources: standard guidelines*, Society of Vertebrate Paleontology News Bulletin. 2010.

2.6 Energy

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY — Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion

a) ***Less than Significant.***

Electricity

Electricity in Tulare County is provided by Southern California Edison (SCE). SCE is a regulated public utility that provides electric services to approximately 15 million people in 50,000 square miles (SCE, 2019). In 2017, approximately 4,258 gigawatt hours (GWh) of electricity were consumed in Tulare County (CEC, 2017). In 2017, approximately 32 percent of SCE electricity was generated from renewables including 13 percent from solar and 10 percent from wind. Approximately 20 percent of SCE's electricity is generated from natural gas and 34 percent is from unspecified sources of power (SCE, 2018). Electricity is not expected to be consumed in large quantities during construction- or decommissioning-related activities, as construction equipment and vehicles are not electric powered (either diesel- or gas-powered). Therefore, electricity associated with construction- or decommissioning-related activities was not calculated. Electricity required during operation (e.g., to operate lights and air conditioners) would be greatly offset by the electricity produced by the solar facility. Therefore, the Project would have a less than significant impact on electricity consumption.

Natural Gas

Natural gas is not expected to be consumed in large quantity during construction-, decommissioning-, or operation-related activities by construction equipment (i.e., no natural gas-powered equipment or vehicles). Water necessary for construction-, decommissioning-, and operational-related activities would be supplied from an existing on-site, natural gas-powered well, as noted in the Water Supply Assessment prepared for the proposed Project (Dudek, 2018; see Appendix F, included in this document). When the property was irrigated, it required up to 450 acre-feet of water annually. Water usage during Project construction-related activities is anticipated to be approximately 147 acre-feet. Approximately, two acre-feet per year would be used for panel washing during operation of the Project and two acre-feet per year for dust control. Therefore, natural gas associated with use of the natural gas-powered well by the Project would be substantially less than the quantity used previously when the property was irrigated. The Project would have a less than significant impact on natural gas consumption.

Gasoline and Diesel

Construction and Decommissioning

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC, 2018a). Diesel fuel is the second largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, construction equipment, and heavy duty military vehicles and equipment have diesel engines. According to the State Board of Equalization, approximately 15.5 billion gallons of gasoline, including aviation gasoline, and 3.1 billion gallons of diesel, including off-road diesel, were sold in California in 2017 (BOE, 2018a, 2018b). In Tulare County, it is estimated that 167 million gallons of gasoline and 41 million gallons of diesel were sold in 2017 (CEC, 2018b).

Construction of the Project would result in fuel consumption from the use of construction tools and equipment, haul truck trips, and vehicle trips generated from construction workers traveling to and from the site. Project construction is expected to consume a total of approximately 110,000 gallons of diesel fuel from construction equipment and vendor, hauling, and water truck trips, and approximately 6,740 gallons of gasoline from construction worker vehicle trips. Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel and heavy-duty equipment would not be a typical condition of the Project. The gasoline consumed during construction represents approximately 0.004 percent of all gasoline sold within Tulare County in 2017. The diesel consumed during Project construction would represent approximately 0.3 percent of all diesel sold in Tulare County in 2017. In addition, there are no unusual Project characteristics that would cause the use of construction equipment to be less energy efficient compared with other similar construction sites in other parts of the State. Therefore, construction-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region.[3]

The Project is anticipated to be in commercial operation for 34 years and 11 months from the commencement of operations, with a potential for continued use in accordance with County permitting requirements. When the Project ceases operation, the facilities would be decommissioned, and the Project site would be restored. These activities would require approximately 4-6 months and would include the use of similar equipment to construction activities; therefore, similar impacts would be expected. Decommissioning activities and corresponding fuel energy consumption would be temporary and could be comparable to the construction-related fuel demand; decommissioning-related fuel use also would not represent a substantial demand on energy resources. Thus, decommissioning-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use. This impact would be less than significant

Operation and Maintenance

Operation and maintenance would require the use of vehicles and equipment including crane trucks for equipment maintenance, mowers or other vegetation management equipment, and additional maintenance equipment such as forklifts or manlifts. No heavy equipment would be used during

[3] Project construction diesel and gasoline consumption was compared to the Little Bear Solar Project in Fresno County (Fresno County, 2018) and the Westlands Solar Park Master Plan in Kings County (Westlands Water District [WWD] 2017),

normal Project operation. Crane trucks, mowers, and other maintenance equipment may require the use of diesel fuel. As outlined in Chapter 1, panel washing would be conducted four times a year. Maintenance and repair of equipment and on-site maintenance such as clearing vegetation would be conducted as needed. Thus, the amount of fuel consumed during Project operation would be relatively minimal and would not constitute a wasteful, inefficient, or unnecessary use of energy.

Operation and maintenance of the Project would require one on-site manager. During panel washing, approximately 2-5 additional workers would be required. Pick-up trucks, likely using gasoline, would be used on the Project site during operation and maintenance. Gasoline would also be required by Project workers commuting to and from the Project site. Approximately 800 gallons of gasoline would be required annually during Project operation. The gasoline consumed by Project workers during operation would be approximately 0.0005 percent of the County's consumption of gasoline in 2017 (CEC, 2018b). Therefore, gasoline use during Project operation would not constitute a wasteful, inefficient, or unnecessary use of energy. This impact would be less than significant.

b) ***No Impact.*** The Project would result in the construction, operation, and decommissioning of an approximately 70 MW solar facility which would produce a new source of renewable energy in Tulare County. Therefore, the Project would directly support SB 100, which mandates that 100 percent of electricity in California be obtained by zero-carbon energy sources by 2045 and updates the state's Renewable Portfolio Standards (RPS). Additionally, the Project would support Tulare County General Plan Policy ERM-4.6 Renewable Energy: "The County shall support efforts, when appropriately sited, for the development and use of alternative energy resources, including renewable energy such as wind and solar, biofuels and co-generation." (Tulare County, 2012). This Project would assist the County in encouraging the development of renewable energy sources.

As described above, the Project would require diesel and gasoline fuel, natural gas, as well as minimal amounts of electricity throughout the life of the Project. However, this amount of energy required by the Project would be offset by the Project's generation of electricity.

In terms of energy usage from heavy-duty vehicles used during construction, the U.S. Environmental Protection Agency and National Highway Traffic Safety Administration (NHTSA) established a comprehensive Heavy-Duty National Program that would reduce greenhouse gas emissions and increase fuel efficiency for on-road heavy-duty vehicles beginning with model year 2014 (USEPA, 2011). CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation also requires diesel trucks that operate in California to be upgraded to reduce emissions, such that by 2023 nearly all trucks would have 2010 model year engines or equivalent (CARB, 2018). Vehicles used during Project construction would already incorporate these standards; therefore, the Project would not impede the efficient use of fuel for heavy-duty vehicles. Off-road equipment during construction would be subject to off-road equipment regulations such as Tier 4 standards or the Off-Road Regulation implemented by CARB, and would therefore not impede the implementation of CARB's energy efficiency programs. Additionally, the use of diesel fuel for heavy-duty vehicles and off-road equipment would not be a typical condition of the Project during operation; therefore, the Project would not conflict with the implementation of fuel efficiency plans.

In terms of light-duty vehicle energy usage, as described above, NHTSA required manufacturers of light-duty vehicles to meet an estimated combined passenger car and light truck average fuel economy level of 34.1 miles per gallon (mpg) by model year 2016. In the course of more than 30

years, the National Energy Conservation Policy Act regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet, and has also protected against inefficient, wasteful, and unnecessary use of energy. Regardless of the uncertainty for fleet-wide emissions past 2021, the projected fleet-wide mpg for light-duty vehicles is expected to reach 41.7 mpg by 2020 (USEPA, 2012, 2018). Additionally, CARB's Advanced Clean Cars Program will continue to improve fuel efficiency and reduce gasoline use through an increase of zero-emission vehicles and plug-in hybrid electric vehicles. Vehicles used by Project construction, decommissioning, and maintenance workers would already incorporate these standards and programs; therefore, the Project would not impede the efficient use of fuel for light-duty vehicles.

The operation and maintenance building would be subject to Building Energy Efficiency Standards as required by California Code of Regulations, Title 24, Part 6. The Building Energy Efficiency Standards are intended to save energy, increase electricity supply reliability, and avoid the need to construct new power plants. Pursuant to the California Building Standards Code and the Energy Efficiency Standards, the County would review the design components of the Project's energy conservation measures when the Project's building plans are submitted. These measures could include: insulation; use of energy-efficient heating, ventilation and air conditioning equipment (HVAC); solar-reflective roofing materials; energy-efficient indoor and outdoor lighting systems, and other measures.

Since the Project would provide a new source of renewable energy supporting the State's energy goals, offset its fuel usage, and comply with fuel and energy efficiency regulations, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no impact would occur.

References

California State Board of Equalization (BOE), 2018a. *Net Taxable Gasoline Gallons, Including Aviation Gasoline*. Available online at: http://www.cdtfa.ca.gov/taxes-and-fees/MVF-10-Year-Report.pdf. Accessed March 18, 2019.

BOE, 2018b. *Taxable Diesel Gallons 10 Year Report, Net of Refunds*. Available online at: http://www.cdtfa.ca.gov/taxes-and-fees/Diesel-10-Year-Report.pdf. Accessed March 18, 2019.

CEC, 2017. Electricity Consumption by County. Available at: https://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed April, 2019.

CEC, 2018a. California Gasoline Data, Facts, and Statistics. Available online at: http://www.energy.ca.gov/almanac/transportation_data/gasoline/. March 18, 2019.

CEC, 2018b. California Retail Fuel Outlet Annual Reporting (CEC-A15) Results. Available online at: http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html. March 18, 2019.

CARB, 2017. Advanced Clean Cars Program. Available online at: https://www.arb.ca.gov/msprog/acc/acc_conceptdraft.htm. Accessed March 18, 2019.

CARB, 2018. On-Road Heavy-Duty Vehicles (In-Use) Regulation. Available online at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed March 18, 2019.

Fresno County, 2018. Little Bear Solar Project Draft Environmental Impact Report. August, 2018. Available at: https://www.co.fresno.ca.us/home/showdocument?id=30154 Accessed April 2, 2019.

Southern California Edison (SCE), 2019. Our Service Territory. Available at: https://www.sce.com/about-us/who-we-are/leadership/our-service-territory Accessed April 2019.

SCE, 2018. 2017 Power Content Label. Available at: https://www.sce.com/sites/default/files/inline-files/2017PCL_0.pdf. Accessed April 2019.

Tulare County, 2012. Tulare County General Plan 2030 Update. Accessed March 18, 2019.

United States Environmental Protection Agency (USEPA), 2011. Final Rulemaking to Establish Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, August. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EG9C.PDF?Dockey=P100EG9C.PDF. Accessed March 18, 2019.

USEPA, 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, August. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF. Accessed March 18, 2019.

USEPA, 2018. Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021- 2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule) Fact Sheet. Available online at: https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/fact_sheet_-_safe_one-pager_final_clean_080218_v1.pdf. Accessed March 18, 2019

Westlands Water District (WWD), 2017. Draft Program Environmental Impact Report, Westlands Solar Park Master Plan and WSP Gen-Tie Corridors Plan, Volume II of II, Technical Appendices C through G. October 2017.

2.7 Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
GEOLOGY and SOILS — Would the project:				
a) to Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Discussion

a.i) ***No Impact.*** The State Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) prohibits the development of structures for human occupancy across active fault traces. Under this Act, the California Geological Survey (CGS) has established "Zones of Required Investigation" on either side of the active fault that delimits areas susceptible to surface fault rupture. The zones are referred to as Earthquake Fault Zones (EFZs) and are shown on official maps published by the CGS. There are no Regulatory Maps available on the CGS Information Warehouse[4] for Tulare County. The Project site does not lie within any mapped EFZs according to the available data. Although the area can be affected by earthquakes or seismic ground shaking, there are no current data available that indicates that active faults are present within the Project site. While the Project site is not located in any know EFZ, there are other known faults in the extended area. The nearest known faults or fault systems to the Project site are the Poso Creek fault approximately 23.0 miles southwest and the Kern County fault system approximately 34.0 miles to the east (USGS, 2017). Other notable faults in the area are the San Andreas fault zone (approximately 64.0 miles southwest of the Project

[4] The CGS Information Warehouse Regulatory Maps portal is a database search tool that can be accessed online on the Department of Conservation's website (maps.conservation.ca.gov/cgs/informationwarehouse/).

site) and the Owens Valley fault zone (approximately 70.0 miles to the northeast) (USGS, 2002). The Recirculated Draft Environmental Impact Report for the Tulare County General Plan 2030 Update mentions the Clovis fault which is not included in the USGS Quaternary Fault and Fold Database of the United States. The report states that the fault is considered to active, although there is no historic evidence of its activity. The report concludes that due to the lack of historic activity there is a lack of adequate evidence to assess the impacts associated with the Clovis fault (ESA, 2010).

Surface rupture occurs when the ground surface is broken due to a fault movement during earthquakes. Generally, these types of hazards occur in the vicinity of an active fault. However, there is no substantial evidence that a known or an unknown active fault capable of producing fault rupture underlies the Project site. Additionally, the proposed Project would not expose people or structures to potential substantial adverse effects relating to rupture of a known earthquake fault. Therefore, the Project would result in a less than significant impact on this item.

a.ii) ***Less Than Significant.*** Tulare County is divided into two major physiographic and geologic regions: the Sierra Nevada Physiographic Province in the eastern region of the county, and the Central Valley Province in the western region of the county. The Project site lies within the Central Valley Province which is generally underlain by marine and non-marine sedimentary rocks. The region is characterized as a flat, alluvial plain, with soil consisting of material deposited by the uplift of the Sierra Nevada mountains (County of Tulare 2010). Due to the county's seismic setting, groundshaking is the primary seismic hazard in Tulare County (County of Tulare, 2010b).

The Project site, along with the majority of Tulare County, lies within an area with a low level of earthquake shaking hazard, as designated by the California Geological Survey (CGS, 2016). The San Joaquin portion of the county is located on alluvial deposits which are more likely to experience greater groundshaking intensities than regions located on bedrock. Therefore, in the event of an earthquake, this region could experience groundshaking that would have the potential to damage structures (Tulare County 2010b). Studies conducted by the U.S. Geological Survey (USGS) show that the Project vicinity has a .01 to 1 percent probability of experiencing an earthquake with a magnitude of 6.7 or higher within the next 30 years (USGS 2015). In such an event, the Project vicinity could experience shaking effects depending on the location of the earthquake epicenter, magnitude, and behavior of materials that underlie to Project site. However, due to the low probability of a high magnitude earthquake, the risk of groundshaking at the Project site is not high. Additionally, Tulare County is characterized as Severity zone "Nil" and "Low" for groundshaking events (Tulare County, 2012). The Project does not include the construction of any residences; and construction- and decommissioning-related phases would be temporary. Furthermore, the Project will be required to adhere to the California Building Code (CBC), which includes design specifications and criteria to minimize damage from seismic events. Together, these factors would result in a minimal risk of damage to people or structures if seismic ground shaking occurred. Therefore, seismic groundshaking on people and structures on the Project site would result in a less than significant impact.

a.iii) ***Less Than Significant.*** Ground liquefaction[5] is an additional risk that can occur during intense and prolonged groundshaking, damaging foundations, utilities, and roadways. Areas that are subject to the greatest risk of ground liquefaction are those where the water table is less than 30 feet below the surface and soils are uniform sands of low to medium density (Tulare County 2010). In the San Joaquin Valley region of the county, the water table is generally less than 30 feet below the surface. However, the soil types in the region are not likely to lead to ground liquefaction as they are typically coarse and high in clay content; therefore, the Project site does not have a great risk of ground liquefaction.

Other seismic-related ground failures (e.g., lateral spreading, landslides, and subsidence) are discussed in further detail below, see items a.iv) and c), and are considered a low risk to the Project. In addition, the Project will have to comply with the CBC which will require that a geotechnical investigation be performed and that recommendations are implemented with respect to any liquefaction potential. The Project would not include the construction of any residences or habitable structures. The property will also have security fencing which will prevent public access to the Project site. These features would result in minimal risk of damage to people or structures in the event of seismic ground failure. Therefore, seismic ground failure, including ground liquefaction, ground liquefaction, lateral spreading, landslides, and subsidence on the Project site would result in a less than significant impact.

a.iv) ***Less Than Significant.*** Landslides generally are any type of ground movement that occurs primarily due to gravity acting on relatively weak soils and bedrock on an over-steepened slope. Slope instability is often initiated or accelerated from soil saturation and groundwater pressure, though may also be aggravated by grading activity, such as removal of toe support by excavation or addition of new loads, such as fill placement. Landslide susceptibility is determined by a number of factors including: topography, geologic structure, water, and strength of rock. Due to the variety of geologic regions present in Tulare County, the Sierra Nevada and foothill regions face very different levels of landslide risk when compared to the San Joaquin Valley region. Due to the flat nature of the valley area, there is no risk of large landslides. While there is minimal risk of small slides and slumping along steep banks of rivers and creeks, the Project site and vicinity has been classified as an area with very low susceptibility to landslides (DOC, 2011). The Project would not include the construction of any residences or habitable structures. Additionally, the construction- and decommissioning-related activities of the Project would conform with the CBC and would represent short-term, intermittent, and temporary periods of activity on the Project site. The property will also have security fencing which will prevent public access to the Project site. These features, coupled with the Project site's classification as an area with very low susceptibility to landslides, would result in minimal risk of damage to people or structures in the event of a landslide. Therefore, the Project would result in a less than significant impact on people and structure with regard to the risk of landslides.

b) ***Less Than Significant.*** The construction- and decommissioning-related activities of the Project would involve ground-disturbing earthwork including limited earthmoving, trenching, and grading. These activities could increase the susceptibility of soils on the Project site to erosion by wind or

[5] Liquefaction is a process whereby soil can temporarily behave like a fluid during intense and prolonged ground shaking.

water and subsequently result in the loss of topsoil. If not controlled and managed, the impact of soil erosion could be significant. However, a Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented as part of the Project in accordance with a NPDES General Permit for Stormwater Discharge Associated with Construction and Land Disturbance Activities. This plan would include Best Management Practices (BMPs) designed to control and reduce soil erosion.[6] The BMPs may include dewatering procedures, storm water runoff quality control measures, watering for dust control, and the construction of silt fences, as needed. During construction-related activities, soil compaction would be used to further reduce soil erosion. Once the Project has been decommissioned, the site would be re-seeded and re-vegetated with low-growing appropriate species. The implementation of these soil and erosion control measures would ensure that soil disturbance and loss would result in a less than significant impact.

c) ***Less Than Significant.*** The region has a recent history of subsidence caused by groundwater withdrawal or overdraft (Tulare County, 2012). The Project site in particular has experienced between 25-50 mm of subsidence (USGS 2017b). As discussed in impacts ai) through aiii), the Project site is not located in an area with significant risk of rupture of an earthquake fault, seismic groundshaking, ground liquefaction, landslides, or other soil stability hazards (i.e., collapse, and lateral spreading). The risk of Project activities resulting in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse is unlikely. Additionally, as Project construction-related activities would be required to adhere to the CBC, which includes requirements for site preparations such as compaction requirements for foundations, impacts associated with ground instability would be minimized. Therefore, the Project would have a less than significant impact on this item.

d) ***Less than Significant***. The soils at the Project site have a range of extensibilities. The portions of the Project site with Exeter loam and Yettem sandy loam have a rating of low potential for linear expansion whereas the San Joaquin loam has a rating of moderate potential for linear extension and the Centerville clays have a high potential for linear extension (NRCS 2017). While some portions of the Project site exhibit a high potential for expansion, there are no residences proposed on the Project site and construction- and decommissioning-related activities would be limited in duration. The Project's off-site site manager would only visit the site a few times per year and staff for panel washing would visit a maximum of four times per year. Additionally, the Project would be required to adhere to the CBC design standards and regulations. Therefore, the proposed Project would not directly or indirectly expose lives or structures to a significant risk due to expansive soils. As a result, the Project would result in a less than significant impact.

e) ***No Impact***. The Project would use small, portable sanitary waste facilities during construction-, operation-, and decommissioning-related activities. The waste from these facilities would be collected and processed by a licensed waste hauler. Therefore, the Project would not require additional septic tanks or waste water disposal systems to be constructed and there would be no impact on this item.

[6] Best Management Practices (BMPs) are individual or combined measures that can be implemented in a practical and effective manner on the Project sites which, when applied, reduce and prevent erosion.

f) ***Less than Significant.*** Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Because of their rarity, and the scientific information they can provide, fossils are highly significant records of ancient life.

Rock formations that are considered of paleontological sensitivity are those rock units that have yielded significant vertebrate or invertebrate fossil remains (SVP, 2010). This includes, but is not limited to, sedimentary rock units that contain significant paleontological resources anywhere within its geographic extent. The Project site is underlain by Late Holocene-age alluvial deposits. These types of sediments would not likely yield significant paleontological remains because they are surface deposits that are not considered fossil-bearing rock units. Therefore, the proposed Project would have a less than significant impact to paleontological resources. The Project site is relatively flat with no unique geologic features; no impact would occur regarding destruction of a unique geologic feature.

References

California Geological Survey (CGS), 2016. Earthquake Shaking Potential for California. Accessed at: http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf.

California Geological Survey (CGS), 2011. Susceptibility to Deep-Seated Landslides in California. Accessed at: http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS58.pdf .

Environmental Science Associates (ESA), 2010. Tulare County General Plan 2030 Update—Recirculated Draft EIR SCH# 2006041162.

United States Geological Survey (USGS), 2015. UCERF3: A New Earthquake Forecast for California's Complex Fault System. Accessed at: https://pubs.usgs.gov/fs/2015/3009/.

United States Geological Survey (USGS), 2017 and 2002. Quaternary Fault and Fold Database of the United States. Available at: http://earthquake.usgs.gov/hazards/qfaults/.

United States Geological Survey (USGS), 2017b. California Water Science Center. Central Valley Drought Indicators. Accessed at: https://ca.water.usgs.gov/land_subsidence/central-valley-subsidence-data.html.

2.8 Greenhouse Gas Emissions

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	GREENHOUSE GAS EMISSIONS — Would the project:				
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a) ***Less than Significant.*** The majority of greenhouse gas (GHG) emissions generated by the proposed Project would be generated during construction-related activities by heavy-duty off-road equipment. GHG emissions also would be generated by construction-related worker-related daily commutes, by heavy-duty diesel tractor trailer trucks that would be required to haul materials and debris to/from the proposed Project site, and as a result of water use for dust control and other construction-related activities. Operational GHG emissions would be generated as a result of maintenance and periodic PV panel washing activities, approximately four times per year. The proposed Project site would be monitored remotely 24-hours a day, seven days a week. Visits to the site for emergency purposes would likely, if at all, occur infrequently (i.e., only a few times per year). **Table GHG-1** presents the estimated GHG emissions during construction- and operation-related activities of the proposed Project. Modeling outputs of project emissions and operational GHG reductions can be found in Appendix A.

TABLE GHG-1
TOTAL PROJECT ANNUAL GHG EMISSIONS

Project Phase	CO_{2e} (metric tons per year)
Construction	1,172
Operation	10
Decommissioning	1,172
Project Total	2,355
Annual Displacement	-43,442
Annual Net Emissions	-41,088

Source: ESA, 2019

High-voltage switchgear for the proposed Project may have circuit breakers that contain SF_6 gas, a GHG with high global warming potential. SF_6 is used as an insulator and arc suppressor in the circuit breakers. Under normal operating conditions, the SF_6 gas would be contained in the equipment and only released due to a leak in the circuit breaker housing.

The electricity generated during the operation of the Project would be added to the power grid and displace electricity generated from fossil fuels. Displaced GHG emissions were calculated by using the average solar radiation hours per day and the current mix of power sources in California. Power sources other than coal and natural gas were not included. The operation of the proposed Project would displace approximately 43,442 metric tons of CO_2e per year and result in a net reduction of

GHG emissions. This annual displacement in GHG emissions would result in an annual net GHG emissions of 41,088 metric tons of CO_2e per year, as shown in **Table GHG-1**. Detailed calculations are provided in Appendix A.

The methodology found in the SJVAPCD's *Climate Change Action Plan* was used to determine the significance of impacts caused by GHG emissions from the Project (SJVAPCD, 2009). This methodology recommends projects be compared to a "business-as-usual" scenario, and that projects should be considered to not have a significant impact if it can be demonstrated to have a 29 percent reduction in GHG emissions from the "business-as-usual" scenario. The "business-as-usual" scenario for the Project assumes that the current electricity generation mix in California remains the same during the operational lifetime of the project (30+ years) and that there would be no changes to the methods used to generate electricity in California. As described in **Table GHG-1**, the proposed Project would result in an annual GHG emissions reduction of more than 38,320 metric tons CO_2e compared to the "business-as-usual scenario", a reduction of greater than 100 percent. Therefore, the Project's GHG emissions would result in a less than significant impact.

b) ***Less than Significant.*** Since the proposed Project is located in an unincorporated area of Tulare County, the most applicable GHG plan is the *Tulare County Climate Action Plan* (CAP) (County of Tulare, 2010), Executive Order S-3-05, Executive Order B-30-15, SB 350, SB 100, AB 32, and SB 32, including the potential for the Project to conflict with the recommended actions identified by CARB in its 2017 Climate Change Scoping Plan.

In April 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emission reduction target will make it possible for California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05. Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs state government to:

- Incorporate climate change impacts into the State's Five-Year Infrastructure Plan;
- Update the Safeguarding California Plan, the State climate adaption strategy to identify how climate change will affect California infrastructure and industry and what actions the State can take to reduce the risks posed by climate change;
- Factor climate change into State agencies' planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce GHG emissions.

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the Renewables Portfolio Standard (RPS) goals established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. California must procure 100 percent of its energy from carbon free energy sources by the end of 2045. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

Executive Order B-30-15 required CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. Subsequently, SB 32, which codifies the Executive Order's 2030 emissions reduction target, was approved by the Governor on September 8, 2016. SB 32 requires CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 statewide GHG emissions limit no later than December 31, 2030 (the target date established by Executive Order B-30-15. CARB recently adopted the 2017 Scoping Plan) to achieve this goal.

The CAP serves as a guiding document for County actions to reduce GHG emissions and adapt to the potential effects of climate change. The CAP requires projects on average achieve a reduction that is six percent in excess of the reductions stated in the ARB Scoping Plan and by regional regulations and programs. AB 32 requires the California Air Resources Board to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

The Project involves the construction-, operation- and maintenance-, and decommissioning-related activities of a solar facility that would produce a new renewable source of energy in Tulare County. Therefore, the Project would directly support the renewable energy target under the 2017 Scoping Plan Update, and a goal of SB 100, for increasing California's procurement of electricity from renewable sources from 50 percent to 60 percent by 2030. As previously discussed, the proposed Project would result in a result in an annual GHG emissions reduction of more than 37,723 metric tons CO_2e compared to the "business-as-usual scenario", a reduction of greater than 100 percent and would be consistent with the Tulare County CAP, SB 32, SB 100, and AB 32. Therefore, the Project would result in a less than significant impact.

References

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2009. *Climate Change Action Plan*. December 17, 2009.

County of Tulare, 2010. *Tulare County Climate Action Plan*. February 2010.

2.9 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion

a) ***Less than Significant.*** The use, storage, and disposal of hazardous materials and wastes associated with the Project could result in potential adverse health and environmental impacts if these materials were used, stored, or disposed of improperly, causing accidents and spills. Potential direct and indirect impacts of such releases could degrade soil and water quality or expose humans and the environment to the harmful effects of hazardous materials.

During construction-related activities of the Project, fuels and other materials such as greases used with construction-related equipment may be stored on-site within locked aboveground containers. Quantities of fuel stored on-site during construction- and decommissioning-related activities are subject to federal and state thresholds. Federal regulations (40 CFR §112) and the Aboveground Petroleum Storage Act define these thresholds and prescribe spill protection requirements designed to protect human health and the environment. The use, storage, transport, and disposal of hazardous materials in connection with the solar facility would be carried out in accordance with federal, state, and local regulations.

Hazardous materials could impact soil or water quality and expose humans and the environment to hazardous materials if they are carried away from the site by storm runoff. To prevent this from

happening, a SWPPP would be prepared by the Applicant/project owner and implemented prior to initiation of construction-related activities. The SWPPP would be submitted to the Central Valley RWQCB and Tulare County for review, and implementation of the SWPPP would be required to comply with federal and state water quality regulations. Additional details of the SWPPP are provided in the Hydrology and Water Quality Impact discussion.

Operation and maintenance of the Project would use a negligible amount of hazardous materials and would not be anticipated to produce significant quantities of hazardous wastes. Transformers would use biodegradable seed oil, and panel washing would not require the use of any chemical cleaners.

Project equipment would be re-purposed off site, recycled, or disposed of in an appropriate landfill upon decommissioning of the solar facility. The use of hazardous materials and generation of hazardous waste would be substantially similar to types/quantities used during construction-related activities, and hazard control measures would also be similar. As required by Tulare County as a Condition of Approval of the Special Use Permit, a Reclamation Plan would be prepared for submission to the County prior to Project approval. This plan would describe detailed site restoration measures and provide cost estimates for reclamation.

Herbicides may be used during operation as part of weed management. If not handled appropriately, use and disposal of herbicides would threaten the health of people or the environment via contamination of surface and groundwater. A Pest and Weed Management Plan would be prepared and implemented in accordance with the Tulare County Fire Department's "Requirements for Large Ground Mounted Non-Residential Solar Projects." The Plan would include recommendations for herbicide application such as the use of species-specific application measures, application of herbicides only by a licensed herbicide applicator, and the use of herbicides that have low toxicity, low water solubility, and low persistence to the extent possible. In addition, the use of herbicides on the Project site would comply with U.S. EPA and California Department of Pesticide Regulation requirements. Implementation of the recommendations in the Pest and Weed Management Plan and compliance with relevant federal, state, and local herbicide regulations would reduce the potential impacts associated with herbicide use to less than significant.

The Project's proposed battery energy storage system (BESS) would likely use lithium ion batteries to store energy. The batteries would be contained in pad-mounted enclosures. This technology requires cooling of the battery components (cells/modules) because lithium ion batteries could otherwise heat to the point of thermal runaway (i.e., failure of a single cell within the system cascading into a fire and explosion). The Project would cool the battery components by maintaining the battery enclosure at room temperature (within a specific temperature range, around 68 degrees Fahrenheit) using traditional air conditioner units (compressor-based refrigerant systems). The battery enclosures would provide an additional level of protection by providing containment in the event of a fire. The Project would implement a fire suppression system to reduce the risk of fire. Features such as electronic monitoring systems, alarms, and circuit breakers would be incorporated in the final design to lower the possibility of a thermal runaway chain reaction. The Project would comply with Section 608 of the California Fire Code to minimize risk of fire from the BESS and to contain fire in the event of an accident. Compliance with Article 480 of the Electrical Code

(which identifies insulation and venting requirements for stationary storage batteries, would further reduce potential fire risk).

The solar facility may be constructed using photovoltaic PV panels that contain a thin semiconductor layer containing cadmium telluride (CdTe). While CdTe itself is a hazardous substance in an isolated form, the CdTe in the PV panels is bound and sealed within the glass sheets and a laminate material. During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis, 2003). CdTe PV modules; therefore, do not present an environmental risk during operations. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe.

Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be recycled effectively at the end of their approximately 30-year life. PV module manufacturers provide CdTe module collection and recycling services. Since 2005, the end-of-life CdTe PV modules have been characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe PV modules are an article of commerce, and are not classified as a hazardous material for shipping purposes under either federal or state law.

Therefore, based on this analysis, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. As such, there would be a less than significant impact.

b) ***Less than Significant.*** Project construction-related activities would require the limited use of hazardous materials that could result in potential adverse health and environmental impacts if these materials were used, stored, or disposed of improperly, causing accidents, spills, or leaks. Implementation of construction-related water quality BMPs (implemented as part of the SWPPP) would reduce the potential for accidental releases and ensure quick response to any spills to minimize impacts to the environment.

Despite the relatively open spaces surrounding the site, nearby sensitive receptors could be exposed to pollutant emissions during construction-related activities of the Project, resulting in adverse health risks in the event of upset or accident conditions involving herbicides. However, vegetation control would primarily occur through mowing and any herbicide application would be made by qualified personnel following product label instructions and in accordance with applicable regulatory requirements such that the risk of upset and accident conditions would be minimized.

Operation- and maintenance-related activities of the Project would not produce hazardous waste and thus none would be spilled or accidentally released. Each enclosed transformer at the substation would include biodegradable vegetable oil, but any upsets or accidents would be controlled via the

secondary containment provided in accordance with applicable federal, state, and local laws and regulations. The oil contained in each transformer does not normally require replacement, minimizing the potential for upsets or accidents involving its use. Further, Health and Safety Code Section 25500 et seq. requires the preparation of hazardous materials release response plans such as a Hazardous Material Business Plan (HMBP) under specified circumstances.

Hazardous materials are unlikely to be released during accidental breakage of the PV panels because they have been found to be sufficiently contained within sheets of glass (Fthenakis, 2003). Similarly, fire damage would not result in the release of hazardous materials because at typical flame temperatures, the CdTe compounds were not found to vaporize (Fthenakis, 2003). The polycrystalline silicon PV panel does not pose a threat to the public or the environment. Specifically, CdTe releases are unlikely to occur from accidental breakage of or fires involving the PV modules. CdTe is a highly stable semiconductor compound due to strong chemical bonding that translates to extremely low solubility in water, low vapor pressure, and a melting point of 1,906˚F. Potential impacts to soil, air, and groundwater quality from broken CdTe PV modules are highly unlikely to pose a potential health risk as they are below both human health screening levels and background levels (Sinha, 2012).

Potential CdTe emissions from fire are unlikely to occur at the Project site because of the general lack of fuel to support a sustained wildfire and the regular vegetation management activities that would occur as part of the Project. Grass fires are the most likely fire exposure scenario for ground-mounted PV systems, and these fires tend to be short-lived "flash" fires due to the thinness of grass fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe (which, as noted earlier, has a melting point of 1,906˚F). Moreover, even if a wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant (approximately 0.04 percent) due to encapsulation in the molten glass matrix (Fthenakis, 2003).

Additionally, during construction-related activities, undocumented subsurface utilities or structures could be encountered, resulting in a release of a hazardous material. The potential for such incidents would be reduced by thoroughly screening for subsurface structures in areas prior to commencement of any subsurface work (as required under California Government Code Section 4216) and described in detail in Section 2.18 Utilities and Service Systems.

Solar facility decommissioning would require the use of fuel and lubricants for construction-related vehicles and equipment, as well as transport and disposal of hazardous materials used at the facility. Inadvertent releases of hazardous materials from spills or leaks could occur. Compliance with existing laws and regulations would ensure that the potential hazard to the public or the environment from an accidental release of hazardous materials would result in a less than significant impact.

Compliance with existing hazardous materials, universal waste, stormwater, and utility regulations, impacts associated with potential hazard to the public, or the environment, from a reasonably foreseeable upset or accident condition involving the release of hazardous materials would result in a less than significant impact.

c) ***No Impact.*** The proposed Project is not within 0.25 miles of an existing or proposed school. The nearest school, Terra Bella Elementary School is located approximately 1.35 miles southeast in Terra Bella, CA. There would be no impact on this item.

d) ***Less than Significant with Mitigation.*** According to the environmental database review, the Project site is not included on any lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Phase I Environmental Site Assessment prepared for the Project (ESA, 2018; Appendix E) identified several recognized environmental conditions (RECs) on the Project site. A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not RECs. The following RECs were identified:

- Three above-ground storage tanks (ASTs) exhibit evidence of leakage and staining on the concrete surface the ASTs sit upon. Although no cracks or faulting were observed within, the staining pattern indicates that leaked fluid migrated off the concrete pads and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the ASTs.

- A diesel motor lies upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the diesel motor, migrated off the concrete pad and onto adjacent undeveloped land. Fluid was seen actively leaking from the diesel engine structure. Therefore, there is potential for subsurface contamination.

- Eleven buckets potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination.

- A motor and electric pumping system lie upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the motor and pumping system, migrated off the concrete pad and onto adjacent undeveloped land. Therefore, there is potential for subsurface contamination.

In addition, the Project site has been used to support agricultural uses such as crops and orchards. Pesticides that were historically used are known to have long-lived residues and lasting health and environmental impacts. The pesticides of concern include arsenic, lead and DDT. Based on the historical agricultural use of the Project site, residual pesticide concentrations in the surface and subsurface soils could be present. As with most agricultural properties, it is possible an existing irrigation line on the Project site may contain asbestos or be wrapped in asbestos. A potential significant impact could result if asbestos-containing materials are uncovered during initial demolition and construction-related activities. Implementation of **Mitigation Measure HAZ-1**. **Phase II Environmental Site Assessment**, and **Mitigation Measure HAZ-2. Suspected Asbestos-containing Materials** would reduce impacts regarding existing RECs and other potential hazardous conditions to a less than significant impact.

Mitigation Measure HAZ-1. **Phase II Environmental Site Assessment.** Prior to the issuance of any grading permits, a Phase II Environmental Site Assessment (Phase II) shall

be prepared and submitted to the County. The Phase II shall identify the extent of contamination located at the RECs within the Project site, and provide a chemical analysis of soil contamination. The Phase II shall incorporate any necessary remediation measures to ensure that any potential added health risks to construction-related workers are reduced to a level required by a regulatory oversight agency. Remediation shall occur in accordance with all applicable federal, state, and local regulations.

Mitigation Measure HAZ-2. **Suspected Asbestos-containing Materials.** The Project proponent shall continuously comply with the following mitigation in the event that materials suspected to contain asbestos are uncovered during initial demolition and construction-related activities:

1. In the event that suspect asbestos-containing materials are discovered during Project activities, work within a 100-foot distance of the discovery shall immediately halt and a California-certified asbestos professional shall take samples for analysis of the suspect materials.

2. All damaged asbestos-containing material and asbestos-containing material that would be disturbed by Project activities shall be removed in accordance with federal, state, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines before work may recommence.

3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Demolition shall be performed in conformance with federal, state, and local laws and regulations so that construction-related workers and/or the public avoid significant exposure to asbestos-containing materials.

e) ***No Impact.*** The Project site is not within an area covered by an airport land use plan or public use airport area and is located approximately 3.1 miles from the nearest private airport (the Porterville Airport in Porterville, CA). Therefore, the Project would not interfere with airport operations or result in a safety hazard for people residing or working in the area. There would be no impact on this item.

f) ***Less than Significant.*** Project construction-, operation- and maintenance-, and decommissioning-related activities could interfere with an adopted emergency response plan or emergency evacuation plan if construction-related activities were to involve the complete or partial closure of roadways, interfere with identified evacuation routes, restrict access for emergency response vehicles, or restrict access to critical facilities (such as hospitals or fire stations).

As described in Section 2.17, Transportation, construction- and operation-related activities of the Project would not require closures of public roads and would not significantly affect current levels of service on area roads. The Project would not limit accessibility to identified public shelter sites, as the nearest schools are located 1-2 miles from the Project site, and the site is not located between the largest population centers of the County and identified public shelter sites or hospitals. The Project would not impair access to or operation of the Emergency Command Center as no roads would be blocked during construction-related activities. The nearest hospital to the Project site is in Porterville, approximately 5.75 miles away. As such, the Project would result in a less than significant impact on emergency response or evacuation plans.

g) ***Less than Significant.*** Analysis of potential impacts regarding wildfire are provided in Section 2.20, Wildfire and Section 2.9 b). For the reasons discussed there, the Project will not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

References

Fthenakis, V., and K. Zweibel, 2003. Conference Paper: CdTe PV: Real and Perceived EHS Risks. Presented at the National Center for Photovoltaics and Solar Program Review Meeting, Denver, Colorado, March 24-26, 2003 NREL/CP-520-33561. https://www.nrel.gov/docs/fy03osti/33561.pdf. May 2003.

Fthenakis, V., H.C. Kim, and E. Alsema, 2008. Emissions from Photovoltaic Life Cycles. Environmental Science and Technology 42(6), 2168-2174.

Sinha, P., R. Balas, L. Krueger, and A. Wade, 2012. Fate and transport evaluation of potential leaching risks from cadmium telluride photovoltaics. Environmental Toxicology and Chemistry, 31(7), 1670-1675.

2.10 Hydrology and Water Quality

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	HYDROLOGY AND WATER QUALITY — Would the project:				
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i)	Result in substantial erosion or siltation on-or off-site;	☐	☐	☒	☐
ii)	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv)	Impede or redirect flood flows?	☐	☐	☒	☐
d)	In flood hazards, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e)	Conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

a) ***Less than Significant.*** Construction- and operation-related activities of the Project could result in violation of water quality standards as a result of anticipated site soil disturbance and other construction-related activities. The Project site is relatively flat, with only a modest potential for any concentrated runoff to occur. Conventional grading would occur throughout the site. However, because the area is relatively flat, it is anticipated that grading would be limited in most areas. Grading and maintenance excavation would also be required for the proposed foundations. These activities would affect current drainage patterns and/or erosion on the Project site; however, careful design of access road gradients and other Project features, such as the inverter pads, would prevent substantial alterations to drainage patterns and/or erosion within the site. The amount of impervious surfaces from construction of access roads; PV module foundations; substation; and the O&M building would be insignificant considering the overall perviousness of the Project site and would be spread across the entire Project area.

Potential impacts on surface water quality from erosion and sedimentation are anticipated to be localized, short-term, and temporary during construction- and decommissioning/site restoration-related activities. There are no anticipated adverse impacts on ground water quality due to erosion and sedimentation.

The Project site is located in the Central Valley Region approximately 800 feet south of Deer Creek at the nearest juncture on the north east portion of the site. Deer Creek is a waterway listed under the State Water Quality Control Board (303d list) as impaired for high pH and unknown toxicity (SWRCB, 2012).

As Project construction-related activities would disturb more than one acre of soil, a SWPPP would be prepared by a qualified erosion control engineer for the Project consistent with the NPDES Construction General Permit requirements.

The SWPPP would include best management practices (BMPs) to be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby drainages, and would be applicable to all aspects of the Project. Specific BMPs for the construction-related phase would be identified during completion and County review of the SWPPP. Typical BMPs to be implemented could include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Installation of a stabilized construction-related entrance/exit and stabilization of disturbed areas;
- Implementing erosion controls;
- Properly managing construction-related materials;
- Proper protections for fueling and maintenance of equipment and vehicles; and/or
- Managing waste, aggressively controlling litter, and implementing sediment controls

In addition, during Project construction- and decommissioning-related activities, any activity that results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. Materials that could contribute to this impact include, but are not limited to: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids utilized by construction- and maintenance-related activities vehicles and equipment. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error. As noted in Section 2.8, Hazards and Hazardous Materials, the Project would be required to provide a Hazardous Materials Business Plan that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction-related activities; and establish public and agency notification procedures for spills and other emergencies, including fires. The Project proponent would provide the Hazardous Materials Business Plan to all contractors working on the Project site and would ensure that one copy is available at the Project site at all times.

Implementation of the SWPPP would ensure that impacts on water quality from construction-related activities would be minimized. Furthermore, the Project would implement BMPs including placement of silt fencing at strategic locations and other erosion control measures designed to minimize potential water quality impacts during the construction-related phase. Topsoil would be separated and stockpiled separately from subsoil and stabilized to prevent erosion. When Project

construction-related activities are complete, stripped subsoil and topsoil would be replaced as required.

Operation of the Project would include routine maintenance of the site such as mowing, and seasonal solar panel washing (2-4 times per year). The Project would not generate wastewater, nor would it generate a substantial amount of solid wastes. Water utilized for panel washing would dissipate into the alluvial soil on-site. Project operations would not include activities that would degrade water quality, or include elements that would violate waste discharge requirements or other water quality standards.

As such, construction, decommissioning, and operation-related activities of the Project would result in a less than significant impact on this item.

b) ***Less than Significant.*** Water usage during construction-related activities is anticipated to be approximately 147 acre-feet. The main use of water during construction-related activities would be for soil compaction and dust control for grading of access road foundations, equipment pads and other Project components. Approximately, two acre-feet per year would be used for panel washing during operation of the Project and two acre-feet per year for dust control. Construction- and operational-related activities water would be supplied from an existing on-site water well as noted in the Water Supply Assessment prepared for the proposed Project (Dudek, 2018; Appendix F; see Appendix F, pages 3 and 5, included in this document). The water source for the well is groundwater from the Tule Subbasin of the San Joaquin Valley Groundwater Basin. No other water sources are proposed to supply the construction- and operational-related activities water demand.

According to the Water Supply Assessment, groundwater is the source of about half of the subbasin's water supply. Both the San Joaquin Valley Groundwater Basin and Tule Subbasin are designated as critically overdrafted by the California Department of Water Resources (DWR) and DWR designated the Tule Subbasin as high priority in accordance with the requirements of the Sustainable Groundwater Management Act (SGMA). SGMA requires all medium or high priority basins to be managed in accordance with a groundwater sustainability plan by January 31, 2020. Groundwater sustainability agencies formed in accordance with SGMA are responsible for complying with its requirements.

Groundwater elevations in the Tule Subbasin fluctuate in response to groundwater pumping, climate trends, and the availability of imported water. There is no comprehensive planning document for the subbasin that quantifies the future supply and demand throughout the subbasin. However, the SGMA process (now under way and the related groundwater sustainability plan) will provide such information including a road map for achieving sustainability. Review of the subbasin sustainable yield in the context of the proposed Project shows that adequate groundwater supply is, and will likely remain, available. The maximum required water for peak demand of Project construction would be approximately 168 acre-feet[7]. This amount is about 15 percent less than that available within the yearly sustainable yield for the property. When extrapolated over a 35-year

[7] Although Project construction is anticipated to require water over just a 320-day period, in order to generate a conservative water demand estimate, this calculation assumed that the Project would have a similar pumping rate during an entire year or 365 days.

planning period this amounts to approximately 4 percent of the estimated sustainable yield for the Project area only (Dudek, 2018).

Therefore, the Project is not expected to decrease groundwater supplies such that the Project would impede sustainable groundwater management of the San Joaquin Basin or the Tule Subbasin. The Project would not add any on-site irrigation systems or other water conveyance infrastructure such that groundwater levels would be altered either on-site or on neighboring properties.

The Project would include construction of 25.47 acres of impervious surfaces including concrete pads that would provide structural support for the substation, battery energy storage systems, communications building, and weather monitoring station. Proposed access roads would consist of an all-weather graveled surface that would neither interfere with groundwater recharge nor allow for excessive runoff during Project operation. The Project site would remain predominantly unpaved or otherwise pervious to groundwater recharge; therefore, the Project is not expected to interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the San Joaquin Basin or the Tule Subbasin.

c,i) ***Less than Significant.*** There are no active waterways within the Project footprint. The nearest waterway to the Project site is Deer Creek (located approximately 800 feet north of the Project). Although this waterway would not be directly altered by the Project, indirect impacts such as siltation could occur during the construction-related activities phase. As stated in the Project Description, the Project would be constructed to follow the existing topography of the Project site as much as possible in order to limit erosion potential and maintain existing site drainage patterns.

As noted under item b), although the Project would result in the creation of some impervious surfaces, these would be limited to approximately 6.8 percent of the entire site and would not significantly affect site drainage or the drainage pattern of the surrounding area. The nature of the existing, relatively flat terrain (and arid climate) of the site is not conducive to substantial erosion from storm-related water. However, Project site construction-related activities would include grading, roadwork, and other site soil disturbances that could transport silt and other sediments on- or off-site. As mentioned under item a), a SWPPP would be prepared for the Project. Erosion prevention measures and other BMPs would be implemented during earthmoving-related activities (e.g., site grading). The erosion control plans would specify the implementation of typical erosion control design features such as straw wattles, check dams, fabric blankets, and silt fencing. Because the site is presently flat and would remain flat after construction-related activities with the addition of a small percentage of the site converted to impervious surface, the Project will not substantially alter the existing drainage pattern of the site or the surrounding area and would result in a less than significant impact to on and offsite erosion and siltation.

c,ii) ***Less than Significant.*** Development of access roads and other site preparation could alter drainage patterns on the Project site. However, as mentioned under item c,i), there are no active waterways within the Project footprint, nor would the Project substantially alter the existing topography of the site such that flooding would occur. Minor erosion and siltation could occur but would be minimal with implementation of a SWPPP and BMPs and would not result in substantial impacts that could increase the likelihood of flooding on- or off-site. Therefore, the Project would result in a less than significant impact.

c,iii) ***Less than Significant.*** The Project would be located in a rural agricultural region/setting; there are no existing or planned improvements or stormwater conveyance structures proposed as part of the Project. Construction-related activities would involve soil disturbances from earthmoving activities, such as site grading and the use of related equipment, which in the absence of appropriate erosion control measures, could contribute sediments and or silt into Deer Creek. However, a SWPPP would be prepared for the Project along with other BMPs that would minimize release of silt, and other pollutants off-site. Therefore, the Project would result in a less than significant impact.

c,iv) ***Less than Significant.*** As described under item c,i), there are no active waterways within the Project footprint. Deer Creek is located approximately 800 feet north of the Project. The Project would not directly impede or redirect the flow of Deer Creek. However, the Project could indirectly impede or redirect the flow of Deer Creek due to erosion or siltation. As analyzed under item c,i), during construction a SWPPP would be implemented in order to minimize erosion and siltation resulting from the Project. The implementation of erosion prevention measures and other BMPs would reduce the Project's impact to the flow of Deer Creek to a less than significant level.

d) ***Less than Significant.*** As described under item a), during Project construction and decommissioning, any activity that could result in the accidental release of hazardous or potentially hazardous materials could cause the release of pollutants if the Project were to be inundated. The Project is proposed in an area designated by FEMA as "Zone X" or an area of minimal flood hazard (FEMA, 2009). Additionally, there are no dams or other large levees in the vicinity of the proposed Project which could fail and ultimately lead to Project inundation. The Project is not located in the coastal zone or near a lake or reservoir; therefore, the Project would not be located in an area subject to inundation by seiche, tsunami, or related mudflow. As the Project is not located in a flood hazard, tsunami, or seiche zone, the risk of Project inundation is minimal. As a result, the Project would have a less than significant impact with regard to the risk of the release of pollutants due to Project inundation.

e) ***Less than Significant.*** The Project is located in the Tule Subbasin. Within the Tule Subbasin, there are six Groundwater Sustainability Agencies. The Project is located within the Eastern Tule GSA (ETGSA). The ETGSA expects to approve and submit a final groundwater sustainability plan in October of 2019; however, there is no existing sustainable groundwater management plan relevant to the groundwater basin underlying the Project (ETGSA, 2019).

The Water Quality Control Plan for the Tulare Lake Basin ("Basin Plan") designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies for waters within the Tulare Lake Basin (CVWQCB, 2018). As discussed under item a), the Project would be required to prepare a SWPPP consistent with the NPDES Construction General Permit. This SWPPP would outline BMPs (discussed in item a) designed to avoid and reduce impacts to surface and groundwater quality, in compliance with the Construction General Permit. As a result, construction of the Project would not conflict with or obstruct implementation of the Basin Plan.

During Project operation, panel washing would require the use of water. Water utilized for panel washing would dissipate into the alluvial soil on-site. Project operation would not include activities which would degrade water quality, violate discharge requirements, or conflict or obstruct with the implementation of the Basin Plan. Project decommissioning would involve the removal of equipment

and restoration of the site to pre-construction conditions, as feasible. Therefore, Project decommissioning would return the site to existing conditions and would not involve any activities which could obstruct or conflict with the implementation of the Basin Plan. As a result, impacts under this item would be less than significant.

References

California State Water Resources Control Board 303d list 2012. Available online: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml.

California Department of Transportation, Water Quality Planning Tool, available online at: http://svctenvims.dot.ca.gov/wqpt/WB303d.aspx?WB=CAR5581000020020502134236#middle_column.

California Regional Water Quality Control Board Central Valley Region (CVWQCB), 2018. Water Quality Control Plan for the Tulare lake Basin Third Edition. May 2018. Available at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/tlbp_201805.pdf. Accessed: March 27, 2019.

Dudek, Water Supply Assessment for the Deer Creek Solar Project, Tulare County, California, August, 2018.

Eastern Tulare Groundwater Sustainability Agency (ETGSA), 2019. EETGSA Visual Timeline Draft GSP Creation Schedule. January 3, 2019. Available at: http://easterntulegsa.com/wp-content/uploads/2019/01/190103-etgsa-updated-timeline-draft-gsp-visual.pdf. Accessed March 27, 2019.

Federal Emergency Management Agency Flood Map Service Center, available online at https://msc.fema.gov/portal.

2.11 Land Use and Land Use Planning

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	LAND USE AND LAND USE PLANNING — Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

a) ***No Impact.*** Generally, the physical division of an established community would occur as a result of the construction of a physical feature (such as a highway or railroad tracks), or the removal of a means of access (such as a local road or bridge) which would impair mobility within an existing community or between a community and outlying areas. The Project site is located on impaired farmland in unincorporated southwestern Tulare County. The site is bound by SR 65 to the east, Road 224 to the west, and Avenue 96 to the south. There are no nearby properties that are zoned for rural residential use that are adjacent to or in the vicinity of the Project site; however, there are a few proximate rural residences to the west and south (separated from the Project site by existing roads). These roads connect the residences to the nearest established community, Terra Bella, located approximately 0.5-mile east of the Project site. The Project site is not located within or immediately adjacent to an established community and the Project would not result in physical division of an established community. Therefore, no impact would occur.

b) ***Less than Significant.*** The updated CEQA Guidelines require analysis of "significant environmental impacts due to conflicts with any plans and policies adopted for the purpose of avoiding or mitigating an environmental effect" (OPR, 2017). There are numerous plans, policies, and regulations that either are implicated by relevant Appendix G checklist questions or were adopted for the purpose of avoiding or mitigating an environmental effect and, thus, are evaluated under the appropriate resource-specific section of this Initial Study. As an example, Section 2.4, Biological Resources, evaluates whether the Project would conflict with the provisions of an adopted Habitat Conservation Plan or similar plan. Thus, environmental impacts that would occur due to conflicts with plans, policies, and regulations are discussed in each appropriate topical section of this Initial Study. Provided below is a discussion and analysis of environmental impacts specifically related to any conflict within a land use plan, policy, or regulation within the study area.

The Project site was most recently used to farm oat hay and wheat, and includes an abandoned orchard. The Project site is designated as Valley Agriculture by the Tulare County General Plan. This designation is intended to "establish areas for intensive agricultural activities on prime valley agricultural soils and other productive or potentially productive valley lands where commercial agricultural uses can exist without conflicting with other uses, or where conflicts can be mitigated. The types of uses typically allowed include irrigated crop production, orchards and vineyards; livestock; resource extraction activities and facilities that directly support agricultural operations, such as processing; and other necessary public utility and safety facilities" (County of Tulare,

2012). The two parcels within the Project site are zoned AE-10 "Exclusive Agriculture 10 Acre Minimum" and AE-40 "Exclusive Agriculture 40 Acre Minimum (Tulare County Zoning). These zoning districts are exclusive zones for intensive agricultural uses and for uses which are a necessary and integral part of an agricultural operation. The purpose of these zones is to protect the general welfare of the agricultural community and prevent the encroachment of non-agricultural uses (Tulare County Zoning Ordinances). The Zoning Ordinance requires that a Special Use Permit be obtained prior to the establishment of non-agricultural uses on agriculturally-zoned lands. The Tulare County Board of Supervisors (BOS) has adopted a number of resolutions that allow photovoltaic facilities on designated agricultural lands. The following resolutions permit photovoltaic facilities on designated agricultural lands given the Project applicant obtains a Special Use Permit and meets the application requirements:

- ***Resolution No. 89-1275*** Uniform Rules for Agricultural Preserves, Resolution No. 99-0620 Establishing Rules on Farmland Security Zones;
- ***Resolution No. 2010-0458*** Interpretation to the Tulare County Zoning Ordinance No. 352 for Solar and Wind Electrical Generation Facilities County Wide;
- ***Resolution No. 2010-0590*** Amendment to Resolution and Interpretation to the Tulare County Zoning Ordinance No. 352;
- ***Resolution No. 2010-0591*** Compatibility for Public and Private Utility Structures Located on Agricultural Zoned Lands and Lands Under Williamson Act Contracts;
- ***Resolution No. 2010-0717*** Establishing Criteria for Public and Private Utility Structures Proposed on Agricultural Zoned Lands and Lands Under Williamson Act Contracts; and
- ***Resolution No. 2013-0104*** Recommendation From the Agricultural Policy Advisor Committee Regarding Siting of Utility Scale Solar Facilities.

Through the approval of a Special Use Permit the proposed Project would be consistent with agricultural zoning designations. The Project would not conflict with existing land use designations/zoning and would comply with the guidelines and policies set forth in the Tulare County General Plan, Tulare County Code, and BOS Resolutions that govern the approval of solar facilities. The Project would be compatible with all relevant land use plans, policies, and regulations and impacts, and as such, would be less than significant.

References

California Department of Fish and Wildlife (CDFW), 2017. California Regional Conservation Plans. Accessed at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68626&inline.

County of Tulare, 2012b. Tulare County General Plan 2030 Update. Accessed at http://generalplan.co.tulare.ca.us/.

County of Tulare. *Tulare County Zoning*. Accessed at: http://tularecounty.ca.gov/rma/index.cfm/documents-and-forms/planning-documents/need-a-map/zoning/.

County of Tulare, Section 9.55 "AE-10" Exclusive Agricultural Zone 10 Acre Minimum (Added by Ord. No. 1946, effective August 12, 1976). Accessed at:

http://tularecounty.ca.gov/rma/index.cfm/documents-and-forms/planning-documents/tulare-county-zoning-ordinance/?startRow=11&nextNID=1C400D60-09B9-8AB3-443784805BA88987.

County of Tulare, Section 9.7 "AE-40" Exclusive Agricultural Zone 40 Acre Minimum (Added by Ord. No. 1946, effective August 12, 1976). Accessed at: http://tularecounty.ca.gov/rma/index.cfm/documents-and-forms/planning-documents/tulare-county-zoning-ordinance/?startRow=11&nextNID=1C400D60-09B9-8AB3-443784805BA88987.

Governor's Office of Planning and Research (OPR), 2017. Proposed Updates to the CEQA Guidelines. November. Available online at: http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf. Accessed March, 2019

2.12 Mineral Resources

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	MINERAL RESOURCES — Would the project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a) ***No Impact.*** Construction-, operation-, and maintenance-related activities of the Project would not result in significant impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. There is no intent whatsoever of the Project to include any aggregate material exploration and production on the Project site; as stated earlier, this Project is solely proposed as a solar energy producing facility. According to maps of Mineral Resource Zones (MRZs within Tulare County), the northern portion of the Project site near Deer Creek is located within a mineral resource zone that may contain significant aggregate deposit (referred to as MRZ-3a) (DOC, 1997). The nearest significant aggregate mining site is located 6 miles away (California Department of Conservation, 1997). Decommissioning of the Project would remove structural components, thereby making the land available for future exploration or production of aggregate materials. However, as this is proposed solar energy producing facility, there would be no impact to this resource.

b) ***No Impact.*** Construction-, operation- and maintenance-, and decommissioning-related activities of the Project would not result in the loss of availability of a locally important mineral resource recovery site. Tulare County land use planning efforts have not resulted in the identification of any locally-important mineral resource recovery sites within the Project site. As noted above, there is no intent whatsoever of the Project to include any aggregate material exploration and production on the Project site. As stated earlier, this Project is solely proposed as a solar energy producing facility; therefore, there would be no impact to any other local plans or land use plans that designate locally important mineral resource recovery sites.

References

California Department of Conservation (DOC), Division of Mines and Geology, 1997. *Mineral Land Classification Map – Concrete Aggregate Resources.* Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_97-01/OFR_97-01_Plate4.pdf

2.13 Noise

	Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	NOISE — Would the project result in:				
a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) ***Less than Significant with Mitigation.*** The proposed Project site is located within an unincorporated area of Tulare County. The surrounding land uses in the vicinity of the proposed Project site are categorized as agricultural. There are approximately 20 potentially sensitive noise receptors (all rural residences) within a 0.5-mile radius of the proposed construction-related areas for the Project. Primary noise sources in the area consist of vehicular traffic along Highway 65, Terra Bella Venue, and Road 224. The ambient noise environment in the vicinity of the proposed Project site was estimated using a relationship between ambient noise levels and population density researched by the U.S. Environmental Protection Agency (EPA, 1974). The EPA determined that ambient noise can be related to population density in locations away from transportation corridors, such as airports, major roads, and railroad tracks. According to the U.S. Census Bureau, the population density of the community of Terra Bella is 1,216 people per square mile as of 2010 (U.S. Census, 2010). Based on population density of 1,216 people per square mile, the estimated ambient noise level at the proposed Project site is 55 dBA L_{dn}.

Temporary Increases in Ambient Noise Levels

Potentially sensitive receptors near the Project would be subjected to Project-related noise from construction- or decommissioning-related activity for a short-term, temporary, and transient time (that is, the source of noise from construction-related equipment would likely move daily as Project is constructed). Construction- and decommissioning-related noise levels would be higher than existing ambient noise levels in the Project area, but would not occur after those activities are completed.

The majority of use of off-road equipment and vehicles would be associated with the construction and decommissioning of the proposed Project. Large construction equipment such as backhoes, compactors, excavators and haul trucks would be used during these phases.

The operation of each piece of off-road equipment within the proposed Project construction area would not be constant throughout the day, as equipment would be turned off when not in use. Over

a typical workday, the equipment would be operating at different locations and all the equipment would not necessarily operate concurrently within the same location of the proposed Project area. To quantify construction- and decommissioning-related noise exposure at the nearest sensitive receptor, it is assumed that the two loudest pieces of equipment would operate within the proposed Project site closest to the nearest an off-site sensitive receptor.

The closest sensitive receptors to the proposed Project area are single-family residences located approximately 200 feet from the proposed Project site's south-west boundary. An excavator and backhoe are the two loudest pieces of off-road equipment that would be operating during proposed Project construction or decommissioning. According to the Federal Highway Administration's (FHWA) *Roadway Construction Noise Model*, a backhoe and excavator operating in the same time and place can generate a noise level of 81 dBA L_{max} and 79 dBA L_{eq} from a distance of 50 feet (FHWA, 2006). Assuming an attenuation rate of 6.0 dB per doubling distance, these residences would be expose to noise levels of 69 dBA L_{max} and 66 dBA L_{eq} during proposed Project construction. According to the FTA *Transit Noise and Vibration Impact Assessment*, people exposed to a daytime 1-hour L_{eq} level of 90 dBA would result in an adverse community reaction (FTA, 2006). As discussed below, implementation of **Mitigation Measure NOI-1** would further reduce construction-related noise levels. Since the nearest sensitive receptors would not be exposed to construction-related noise levels that would be considered adverse, this impact would result in a less than significant impact during construction- or decommissioning-related activities. Noise generated during operation-related activities, primarily panel washing, would be substantially less than generated during construction and decommissioning, resulting in a less than significant impact.

Permanent Increases in Ambient Noise Levels

Major components of the proposed Project include solar PV panels and arrays; a tracker system; an on-site substation, an electrical interconnection system, and an energy storage facility. The proposed Project would use inverters and transformers to convert 1,000 – 2,000 volts DC to 34.5 kV AC, which is later stepped-up to 66 kV by the transformers at the proposed on-site substation. The tracker motors would likely be located near the inverters. The locations of the invertors, transformers and substation are shown in Figure 2.

An inverter can generate a noise level of 65 dBA L_{eq} from a distance of 5 feet and the array tracker motor can generate noise level of 61 dBA from a distance of 5 feet (Satcon, 2018). The transformer near each inverter that would step-up the voltage can generate a noise level of 58 dBA L_{eq} from a distance of 5 feet (NEMA, 2014). Of the 70 inverters pads within the proposed Project site, the closest an inverter pad would be located from the nearest existing sensitive receptor (a rural single-family residence) is approximately 800 feet.

The primary noise source at the proposed on-site substation is the 66 KV step-up transformer, which can generate noise level of 63 dBA L_{eq} from a distance of 5 feet. As shown in **Figure 2**, the proposed on-site substation would be located on the south western portion of the Project site, approximately 200 feet from the nearest existing sensitive receptor.

The primary noise source from the energy storage facility is the heating, ventilation, and air conditioning (HVAC) maintaining the battery room temperature within a specific temperature range. The HVAC unit can generate a maximum noise level of 75 dBA as measured three feet outside the energy storage facility perimeter fence (CPUC, 2017).

Table NOI-1 shows the operational noise exposure levels at the nearest existing sensitive receptor during Project operations with a 6.0 dB per doubling of distance attenuation rate.

TABLE NOI-1
TRACKER SYSTEM OPERATIONAL NOISE LEVELS
AT NEAREST EXISTING SENSITIVE RECEPTOR

Source	Reference Noise Level (dBA L_{eq})[1]	Distance to Nearest Sensitive Receptor (feet)	Noise Level at Nearest Sensitive Receptor (dBA L_{eq})
Inverter	65	800	21
Transformer	58	800	14
Array Tracker Motor	61	800	17
Battery Facilities	69	200	37
Substation	63	200	31
Cumulative Noise Level at nearest Sensitive Receptor (dBA L_{eq})			38

NOTE:

1 Measured distance of 5 feet.

SOURCE: NEMA, 2014. Satcon, 2012. CPUC, 2017.

As shown in Table NOI-1, the nearest sensitive receptor to the Project site would be exposed to an hourly L_{eq} noise level of 37 dBA during Project operation. Assuming the proposed Project would operate 24-hours a day, the nearest sensitive receptor located approximately 200 feet east of the Project site would be exposed to a noise level of 44 dBA L_{dn}. The combined ambient and operational noise level at the nearest sensitive receptors would be 55.3 dBA L_{dn}, which is a 0.3 dB increase over the existing ambient. According to Caltrans' *Technical Noise Supplement*, a 3 dB increase in noise is considered barely perceptible to the average person (Caltrans, 2013). Since the proposed Project would not expose nearby sensitive receptors to noise levels that would be considered perceptible, this impact would be less than significant.

Consistency with Noise Standards

The most applicable noise standards for the Project are provided by the Tulare County General Plan 2030 Update (County of Tulare, 2012). The Health and Safety section of the General Plan contains Goals and Objectives relative to planning for the noise environment within the County. Future noise/land use incompatibilities can be avoided or reduced with implementation of Tulare County's noise criteria and standards. Tulare County realizes that it may not always be possible to avoid construction-related noise near sensitive receptors and therefore provides noise reduction strategies to be implemented in situations with potential noise conflicts. Tulare County General Plan 2030 Update, Goals and Policies Report, Table 10.1 Land Use Compatibility for Community Noise

Environments states, specifically for residential land uses, that a noise level between 50-60 decibels is normally acceptable, while a noise between 55-70 is conditionally acceptable.[8].

The Tulare County General Plan 2030 Update contains three policies (Policies HS-8.11, HS-8.18, and HS-8.19) pertaining to construction-related activities. Policy HS-8.11 Peak Noise Generators limits construction-related noise to normal business hours (7:00 a.m. to 7:00 p.m.), but does allow noise generating activities outside of normal hours with County approval. Policy HS-8.18 limits construction-related activities to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday, when activities occur near sensitive receptors. Policy HS-8.19 of the General Plan requires contractors to implement best practices guidelines, as appropriate and feasible, to reduce construction-related noise impacts on surrounding land uses.

The construction-related activities of the proposed Project would occur within the daytime hours specified in the County's general plan Policies HS-8.11 and HS-8.18. Consistent with Policy HS-8.19, implementation of **Mitigation Measure NOI-1** would reduce this noise exposure on surrounding land uses impact to a less than significant impact level by requiring the applicant to implement a series of measures to reduce on-site construction-related noise.

Therefore, the operation of the proposed Project would not expose nearby sensitive receptors to noise levels that would violate the County general plan policies and would result in a less than significant impact.

> **Mitigation Measure NOI-1: Construction Noise Reduction Measures.** To reduce daytime construction-related noise at the proposed Project site during construction-related activities, the applicant shall require contractors working within the proposed Project site to implement the following measures:
>
> - Equipment and trucks used for construction-related activities shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds), wherever feasible. Noise reduction efforts shall be sufficient to reduce noise to acceptable levels (i.e., consistent with General Plan's Goals and Policies Report, Table 10.1 Land Use Compatibility for Community Noise Environments).
>
> - Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction-related activities shall be hydraulically or electrically powered where feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dB. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dB. Quieter procedures, such as use of drills rather than impact tools, shall be used whenever feasible. Noise reduction actions shall be sufficient to reduce noise to acceptable levels (i.e., consistent with General Plan's Goals and Policies Report, Table 10.1 Land Use Compatibility for Community Noise Environments)

[8] Tulare County General Plan 2030 Update. Goals and Policies Report. Page 10-2410. Health and Safety accessed at: http://generalplan.co.tulare.ca.us/documents/GP/002Board%20of%20Supervisors%20Materials/001BOS%20Agenda%20Items%20-%20Public%20Hearing%20August,%2028%202012/008Attachment%20G.%20Public%20Comment,%20%20Staff%20Matrix,%20and%20Responses/004Item%204.%20GPU%20AMUS/17-CHP%2010%20Health%20&%20Safety.pdf

- Residents within 0.5-mile of construction-related activity shall be notified prior to commencement of noise-generating activities that are estimated to reach 70 decibels or higher. Signs shall be posted at the construction sites that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number in the event of noise-related issues.

- An on-site complaint and enforcement manager shall respond to and track complaints and questions related to noise. The manager will be authorized to implement noise reduction techniques accordingly.

b) ***Less than Significant.*** Project construction-related activities would include earthmoving activities such as excavation, site preparation, foundation, and the installation of the solar PV panels and arrays, tracker system, and substations. Construction-related activities may generate perceptible vibration when heavy equipment or impact tools such as heavy dozers are used. Project construction-related activities would not require impact pile driving or blasting, which can cause excessive vibration. The use of a vibratory pile driver could be used during the installation of arrays and fence posts within the proposed Project site and if used would generate the highest vibration levels during construction-related activities. Other construction-related equipment known to generate high vibration levels that would be operational during the construction-related activities of the proposed Project would include bulldozers and loaded trucks. These pieces of construction-related equipment would generate vibration levels substantially less than a vibratory pile driver and would not likely be operated concurrently. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. According to the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment*, a vibration exposure of 80 VdB is the threshold for human annoyance and 0.2 PPV is the threshold for building damage (FTA, 2006). Vibratory pile drivers typically generate vibration levels of 74 VdB and 0.021 in/sec PPV at a distance of 100 feet, which are below the 80 VdB threshold for human annoyance and the 0.2 PPV threshold for building damage. Since there are no existing sensitive receptors or structures located within 100 feet of the proposed Project site, this impact would be less than significant.

Operation- and maintenance-related activities of the proposed Project would not introduce any new sources of perceivable groundborne vibration. Therefore, there would be no operation- or maintenance-related vibration or groundborne noise impacts.

c) ***No Impact.*** The proposed Project site is not located within an airport land use plan or within two miles of a public airport or public use airport. The nearest airport is the Porterville Airport, which is located approximately three (3) miles north of the proposed Project site. As such, the Project would result in no impact associated with exposing people to excessive public airport noise.

References

Caltrans, 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

County of Tulare, 2012. Tulare County General Plan 2030 Update. August 2012.

County of Tulare, 2012. Tulare County General Plan 2030 Update. Goals and Policies Report. Health and Safety accessed at: http://generalplan.co.tulare.ca.us/documents/GP/002Board%20of%20Supervisors%20Materials/001B

OS%20Agenda%20Items%20-%20Public%20Hearing%20August,%2028%202012/008Attachment%20G.%20Public%20Comment,%20%20Staff%20Matrix,%20and%20Responses/004Item%204.%20GPU%20AMUS/17-CHP%2010%20Health%20&%20Safety.pdf

Federal Highway Administration (FHWA), 2006. *FHWA Roadway Construction Noise Model User's Guide*. January 2006.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06)*. May 2006.

National Electrical Manufacturers Association (NEMA), 2014. NEMA TR 1-2013 Transformers, Step Voltage Regulators and Reactors. 2014.

Satcon, 2012. PowerGate Plus 1MW UL (PVS-1000-UL).

California Public Utilities Commission (CPUC), 2017. Southern California Edison, Circle City Substation and Mira Loma-Jefferson 66 kV Subtransmission Line Project. Data Request Set, A1512007 ED-SCE-16. December 27, 2017.

U.S. Census Bureau, 2010. *Terra Bella CDP, California*. Access at https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk. Assessed on February 27, 2018.

U.S. Environmental Protection Agency, 1974. *Information of Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

2.14 Population and Housing

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	POPULATION AND HOUSING — Would the project:				
a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) ***Less than Significant***. In general, a project would be considered growth-inducing if its implementation would result in substantial population increases and/or new development that might not occur if the project were not implemented. The Project does not propose new development of housing. While the Project would temporarily increase employment opportunities during construction-related activities, it would not establish permanent employment opportunities that would induce population growth. During construction-related activities, the Project is anticipated to employ an average of 63 construction personnel. The number of on-site workers is estimated to peak at 90 workers for short periods of time. Workforce needs during Project decommissioning-related activities are anticipated to be similar to those outlined for construction-related activities. During Project operation, the Project would employ one, off-site site manager. Panel washing may require up to 5 workers during an eight-hour shift.

It is anticipated that the majority of the workforce for the Project would be drawn from local communities within Tulare County and they would commute to the work site. Although it is possible that some construction-related workers from outside of Tulare County may temporarily relocate to local communities for the duration of construction-related activities, this increase in population would be minor and temporary. Therefore, the Project would not induce substantial population growth, either directly or indirectly and the Project would result in a less than significant impact on this item. Additionally, despite the fact that the Project would increase the availability of electrical capacity (as it is considered growth-accommodating in relation to the energy needs of the existing and future populations of the region), this factor alone is not anticipated to induce substantial population growth. Many factors such as economic conditions, land availability, the availability of water supply and sewer services, and local planning efforts have a more direct impact on population growth. Therefore, the energy produced by the Project would not directly or indirectly encourage new development or induce population growth. As such, the Project would result in a less than significant impact on this item.

b) ***No Impact***. There is no existing housing on the Project site, nor is the site zoned for residential use. As noted earlier, the Project is solely a solar energy producing facility and its accompanying components. Therefore, the Project would not displace substantial numbers of housing or people that would necessitate the construction of replacement housing elsewhere. No impact would occur on these items.

References

Deer Creek Solar I, LLC, 2017. Special Use Permit Application No. PSP18011. Submitted February 7, 2018.

2.15 Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i) ***Less than Significant.*** Construction- and operation-related activities of the proposed Project would require the use of fire protection services in the event of an accident or other safety/security related incident requiring emergency service support. However, such possible incidents and calls for emergency support are not likely to require any changes to levels of service currently in place. Furthermore, construction-related emergencies would be limited to approximately 12 months during construction-related activities and, as such, response times or acceptable service ratios would not be impacted by the proposed Project. Similarly, operation of the proposed Project may require an occasional service call for emergency support (e.g., in the event of a fire, health emergency, or accident). Such calls are anticipated to be unlikely, if at all, and would not require development of new or altered fire protection facilities.

Tulare County is served by a number of local agencies that provide fire protection. The Project site is located approximately one mile from the Tulare County Fire Department Terra Bella Fire Substation and approximately 6.6 miles from the Porterville Fire Department. The Tulare County Fire Department also operates under a "Mutual Aid Agreement" which allows the Tulare County Fire Department to receive and deliver mutual aid services from, and to, cooperating agencies (Tulare County Fire Department, 2017b).

As the majority of the employees for Project construction-related activities are anticipated to be drawn from the local workforce within Tulare County, any increase in the local population during construction-related activities would likely be minimal and temporary. Once constructed, the Project's operational needs would consist of an off-site site manager that would only visit the site a few times per year and staff for panel washing (up to four times per year), and accordingly would not result in an increase in population. The construction-, operation-, maintenance-, and decommissioning-related phases of the Project would not generate an increase in the local population and, therefore, would not require the construction of new fire protection facilities or

alteration of existing facilities to maintain response times and service ratios. As such, the Project would result in less than significant.

a.ii) ***Less than Significant.*** Construction- and operation-related activities of the proposed Project could require the use of police protection services in the event of an accident or other safety/security related incident requiring emergency service support. However, because of the temporary construction-related period and passive operation of solar PV projects, such possible incidents and calls for emergency support are not likely to require any changes to levels of service currently in place. Development of the proposed Project would not require new or expanded police or law enforcement facilities as a result of the construction- or operations-related activities of the proposed Project. Therefore, the Project would result in a less than significant impact.

a.iii) ***No Impact.*** There are currently 43 elementary school districts, and 13 high school districts that serve Tulare County (TCOE 2017). The nearest schools to the Project site are Terra Bella Elementary School and Carl Smith Middle School, both approximately 1.5 miles from the Project site. Although temporary construction-related workers would be required for the development of the Project, their service would only be required for the 12-month construction-related phase. Given the temporary nature of its staffing requirements, the proposed Project will not include any population growth and will, therefore, not impact the need for additional school facilities.

a.iv) ***No Impact***. The Project would not result in an increase in population and therefore would not create an increase in demand for public parks; there would be no impact on this item.

a.v) ***No Impact.*** The Project would not result in an increase in the local population during any phase of the Project (construction, operation, maintenance, or decommissioning). As such, there would be no increase in demand for new public facilities and there would be no impact on this item.

References

County of Tulare, 2012. Tulare County General Plan 2030 Update. Accessed at http://generalplan.co.tulare.ca.us/.

Tulare County Fire Department, 2017a. "About Tulare County Fire Department". Accessed at http://tularecounty.ca.gov/fire/index.cfm/about-tcfd/continued-about-tulare-county-fire-department/.

Tulare County Fire Department, 2017b. "About Tulare County Fire Department". Accessed at http://tularecounty.ca.gov/fire/index.cfm/about-tcfd/.

Tulare County Office of Education (TCOE), 2017. "Tulare County School Districts". Accessed at http://www.tcoe.org/Districts/.

Tulare County Sheriff's Department (TCSD) 2015. "2014-2015 Annual Report". Accessed at: http://tularecounty.ca.gov/sheriff/index.cfm/community/2014-2015-annual-report/.

2.16 Recreation

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	RECREATION:				
a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a, b) ***No Impact.*** The nearest County owned/operated recreational facilities are Bartlett Park (located approximately 8 miles northeast of the Project site) and Lake Success (located approximately 13 miles northeast of the Project site) which include picnic areas, birdwatching and fishing opportunities, as well as access to a small marina (Tulare County, 2017). The nearest public-access park to the Project site is Setton Pistachio playground located in Terra Bella, approximately one mile from the Project site (Castellon, 2014). The Project does not include any new housing to sustain a population that would induce growth or increase the use of existing neighborhood and regional parks. The Project would also not include any long-term staffing that would lead to substantial physical deterioration of any recreational facilities in the area. The proposed Project would not include the construction of any recreational facilities. It would not generate substantial growth during construction-, operation-, or maintenance-related activities such that new, or expansion of existing, recreational facilities would be required. As such, there would be no impact on these items.

References

Castellon, David, 2014 "Terra Bella Residents Celebrate their First Park". *Visalia Times-Delta* Available at: http://www.visaliatimesdelta.com/story/news/local/2014/06/11/terra-bella-residents-celebrate-first-park/10310467/.

Tulare County, County Administrative Office, 2017. "County Parks" Available at: http://tularecounty.ca.gov/cao/index.cfm/general-services/parks-and-recreation/county-parks/.

California Protected Areas Data Portal, 2018. Available at http://www.calands.org/map.

2.17 Transportation

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	TRANSPORTATION — Would the project:				
a)	Conflict with ~~a~~ program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	☐	☐	☒	☐
b)	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3. subdivision(b)	☐	☐	☐	☒
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d)	Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

a) ***Less than Significant.*** Construction-related activities of the Project would require use of SR 65 and Avenue 96 by construction-related workers and haul trucks to access the Project site. According to the most recent data published by the California Department of Transportation (Caltrans), the average daily traffic (ADT) volume on SR 65 in the vicinity of the Project site is approximately 9,600 vehicles, with approximately 990 vehicles during the peak traffic hour (Caltrans, 2017a). For purposes of determining the peak-hour level of service (LOS) of SR 65, a capacity of 1,600 vehicles per hour per lane (i.e., 3,200 two-way vehicles per hour) is assumed based on guidance provided in the Highway Capacity Manual (HCM) (Transportation Research Board, 2010) for a two-lane highway. Therefore, the peak-hour volume along SR 65 in the Project vicinity constitutes approximately 31 percent of the roadway capacity (v/c ratio of 0.31), which is within LOS A. LOS A is defined as free-flow traffic operations with little, if any, delays. Although Caltrans has not designated a LOS standard, the Highway Design Manual (Caltrans, 2017b) indicates that it endeavors to maintain a target LOS at the transition between LOS C and LOS D on the state highway facilities.

Avenue 96 is a local road primarily serving agriculturally-related traffic, with corresponding low existing traffic volumes. In 2011, the most recent year for which data is available, the ADT on Avenue 96 in the vicinity of the Project site was 1,150 vehicles (Tulare CAG, 2011). Peak hour traffic volumes on Avenue 96 in the vicinity of the Project site are not available; however, following the HCM guidance on the capacity of a two-lane road (1,600 vehicles per hour per lane, or 3,200 two-way vehicles per hour), the v/c ratio would be 0.36 (LOS A) even if all 1,150 vehicles were to be present during the peak hour. The Tulare County General Plan (Tulare County, 2012) Policy TC-1.16 has established LOS D as the minimum acceptable level of service on most County roads, which includes Avenue 96.

The average on-site workforce for the Project during construction-related activities would comprise approximately 63 personnel. The on-site workforce has been conservatively estimated to peak at approximately 90 individuals for short, temporary, and intermittent periods of time (e.g., likely 2-3 weeks). It is anticipated that the construction-related workforce would commute to the site each

day from local communities. Construction-related staff not drawn from the local labor pool may utilize nearby over-night lodging (i.e., hotels/motels). Although carpooling will be encouraged, for purposes of this analysis (and to ensure that potential impacts are not underestimated), construction-related workers were assumed to commute as single-occupants in their own respective vehicle (i.e., no carpooling) and to arrive in the a.m. peak hour and leave during the p.m. peak hour each weekday.

As noted in Section 1.4.5, Traffic and Deliveries, the majority of truck trips used during construction-related activities of the Project would consist of concrete deliveries. Concrete used in construction-related activities would require approximately 25 concrete truck trips during Project construction-related activities. It is noted that truck trips used to transport concrete mix to the Project Site would occur throughout the day and would not be concentrated during the weekday peak hours. Conservatively, assuming that all concrete truck trips would occur during a one-week period of Project construction-related activities, a maximum of five concrete trucks per day was assumed in the analysis of construction-related traffic.

Based on the above, construction-related activities of the Project could generate as many as 90 worker trips in both the a.m. and p.m. peak hours during short periods of time. On average, trips would be approximately 63. As noted above, truck hauling and delivery trips would, to the extent feasible, occur outside of the peak hours; therefore, the number of peak hour truck hauling and delivery trips would be negligible (i.e., fewer than five). The addition of Project-generated construction-related trips on SR 65 would increase the peak hour v/c ratio from 0.31 to 0.34, which would still remain within LOS A. On Avenue 96, the addition of Project-generated construction-related trips would be more noticeable considering the very low volume of existing traffic on that roadway. However, because of the large amount of excess capacity on Avenue 96, adding 180 worker trips (90 inbound, 90 outbound) and 25 round-trip truck trips on a daily basis would result in an ADT of 1,355 vehicles. Considering the two-way roadway capacity of 3,200 vehicles per hour (based on guidance provided in the Highway Capacity Manual as noted earlier) and the fact that the ADT would be spread throughout the day and would not all occur during the peak hour, the level of service would very likely remain at LOS A. Even in the unlikely event that the level of service was to temporarily decline to LOS B due to the influx of worker trips during the a.m. or p.m. peak hours, conditions would still be within the LOS standards established by the County or Caltrans. Therefore, construction-related traffic impacts associated with Project would be less than significant.

The Project would operate on an unstaffed basis and be monitored remotely. Visits to the site for emergency purposes/upset events would occur infrequently, if at all (i.e., only a few times per year as needed). Panel washing would occur up to four times per year for as many as 40 days at a time, requiring up to 5 workers during an eight-hour shift, or as many as 10 one-way vehicle trips per day. Because these activities would not generate a substantial number of trips that would have any significant effect on LOS, and would be lower than the trips generated during Project construction-related activities, traffic impacts associated with O&M would be less than significant.

The Transportation and Circulation Element of the Tulare County General Plan includes policies regarding access and safety standards of roadway facilities, bike facilities, and public transit. Although the Tulare County General Plan seeks to coordinate multiple forms of transportation,

including cars, commercial vehicles, buses, transit, bicycles, and pedestrian traffic, it does not contain specific policies governing pedestrian traffic. Tulare County also has adopted the 2010 Tulare County Regional Bicycle Transportation Plan (TCAG, 2010) that strives to improve bicycle planning and to make bicycling an integral part of daily life in Tulare County.

The Project is consistent with the Tulare County General Plan policies and 2010 Tulare County Regional Bicycle Transportation Plan because there is no public transportation service or dedicated pedestrian or bicycle facilities on roads that access the Project site, and because neither Avenue 96, SR 65, nor other roadways that would be traveled by Project traffic are listed within the 2010 Tulare County Regional Bicycle Transportation Plan as an "existing or planned bikeway." Similarly, the Project site would not introduce a barrier to non-motorized travel. Therefore, the Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. The Project also would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities because there are no such facilities in the affected area. Therefore, the Project would cause no impact related to transit, bicycle, or pedestrian facilities.

b) ***No Impact.*** In accordance with Senate Bill (SB) 743, the new CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas, and shifts the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. Tulare County is currently engaged in this process and has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the County, delay and LOS are the measures used in this EIS/EIR to determine the significance of transportation impacts (see impact discussion a, above). As such, no further analysis is required and no impacts related to CEQA Guidelines section 15064.3, subdivision (b) would occur.

c) ***Less than Significant.*** Construction-related activities of the Project would require the delivery of off-road heavy construction-related equipment and facility materials, some of which may require transport by oversize vehicles. The use of oversize vehicles during construction-related activities can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space.

Construction-related oversize vehicle loads must comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code. California Highway Patrol escorts may be required at the discretion of Caltrans and Tulare County, and would be detailed in respective oversize load permits. Due to the rural nature of the area roads, construction-related vehicles are not anticipated to incur hazards traveling to and from the Project site. Furthermore, the Project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the Project site.

Only one access/egress driveway to the Project site would be provided, which would be located on Avenue 96 (see Figure 2); no driveways (i.e., access or egress) on SR 65 are proposed. Construction-related access/egress to the Project site would occur at the Avenue 96 driveway. Design and construction-related activities of the Project access/egress road intersection would be required to conform with Tulare County standards. Among the applicable requirements are corner sight distance (though the flat terrain is assumed to not make sight distance an issue of concern), and vertical and horizontal clearance for the 60-foot-long overhead crossing of either (or both) Avenue 96 and Road 224 to connect the proposed substation with the existing 66 kV Terra Bella line. These requirements will ensure Project elements do not increase transportation-related hazards. Impacts associated with transportation-related hazards resulting from a Project geometric design feature or incompatible uses would be less than significant.

d) ***Less than Significant.*** The Project would be located in a rural area with public access on Avenue 96 allowing adequate egress/ingress to all proposed PV electricity generating facilities in the event of an emergency. Access improvements to the Project site would be implemented in accordance with the Tulare County Fire Department's "Requirements for Large Ground Mounted Non-Residential Solar Projects." Site access requirements include the following:

- Installation of a Knox Box at an approved location,
- Access gates shall be set back 30 feet from the roadway for fire apparatus access,
- Access roads of an all-weather surface shall be provided so that no portions of the PV panels are further than 155 feet from a fire apparatus access road,
- Access roads shall be a minimum of 20 feet in width, with a maintained 13.5-foot vertical clearance,
- Twenty-foot fire access roads shall be constructed at intervals of no greater than 310 feet, and
- Address shall be visible from roadway; minimum 4-inch numbers.

As described earlier in impact discussion a), increased Project-related operational traffic would not cause a significant increase in congestion and would not significantly affect the existing LOS on area roads. Furthermore, the Project would not require closures of public roads, which could inhibit access by emergency vehicles. During construction-related activities of the Project, heavy construction-related vehicles (e.g., heavy duty tractor-trailers) could interfere with emergency response to the site or emergency evacuation procedures in the event of an emergency (e.g., by slowing vehicles traveling behind the truck). However, given that there are very few businesses and residences, and no emergency response stations in the immediate vicinity of the Project site, the intermittent and temporary occurrence of heavy construction-related traffic would not result in inadequate emergency access. Therefore, the Project would allow for adequate emergency access during construction- and operation-related activities and a less than significant impact would occur.

References

AirNav.com, 2018. FAA Porterville Municipal Airport Operational Statistics, March 1, 2018.

California Department of Transportation (Caltrans), 2017a. *2016 Traffic Volumes on California State Highways*, 2017.

California Department of Transportation (Caltrans), 2017b. *Highway Design Manual, 6th Edition*, 2017.

Transportation Research Board (TRB), 2000. *Highway Capacity Manual*. National Research Council, Washington, D.C.

Tulare County, 2017. Resource Management Agency, Project Review Committee Memorandum, Deer Creek Solar I Project, "Requirements for Large Ground Mounted Non-Residential Solar Projects," January 4, 2017.

Tulare County, 2012. *Tulare County General Plan – 2030 Update*, August 2012.

Tulare County, 2012. *Tulare County Comprehensive Airport land Use Plan*, December 2012. Prepared by Aries Consultants Ltd. Accessed at: http://tularecounty.ca.gov/rma/assets/File/RFP/TC%20CALUP%20Adopted%20Dec%202012%20(1).pdf

Tulare County Association of Governments (TCAG), 2011. Traffic Count Data, 2011.

Tulare County Association of Governments (TCAG), 2010. *Tulare County Regional Bicycle Transportation Plan*, September 2010.

2.18 Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Tribal Cultural Resources — Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

a, b) ***Less than Significant with Mitigation.*** Tribal cultural resources are: 1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing in the California Register of Historical Resources (California Register), or local register of historical resources, as defined in PRC Section 5020.1(k); or, 2) a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC Section 21074[b]). Also, a historical resource, as defined in PRC Section 21084.1, unique archaeological resource, as defined in PRC Section 21083.2(g), or non-unique archaeological resource, as defined in PRC Section 21083.2(h), may also be a tribal cultural resource.

On September 27, 2017, ESA contacted the Native American Heritage Commission (NAHC) to request a search of their Sacred Lands File and a list of local American tribes who might have knowledge of cultural resources in the vicinity of the Project site. In a letter response on October 10, 2017, the NAHC did not identify any sacred sites in the Project site and recommended contacting the six (6) individuals on the list provided for more information on potential sites and tribal cultural resources within the vicinity. ESA provided the response letter to the County of Tulare, which conducted additional consultation according to the requirements of Assembly Bill 52. On February 28, 2018, notices were sent to twelve (12) individuals, representing six (6) Tribes, providing information on the project, a map, and an invitation to consult on the project. No responses were received within the mandatory 30-day response time-frames. County staff followed up with the Tribes via email on April 18, 2019. One Tribe replied on April 19, 2019, requesting consultation with the County. In response, County staff provided the Tribe with a summary of the SLF and CHRIS search results. Mitigation measures, which include a condition that the Tribe specifically be contacted in the event of accidental discovery of resources, have been incorporated

into the Project to reduce potential impacts as a result of potential future discovery of Native American tribal cultural resources.

Through a records search and background research at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System, a geologic analysis, and a surface survey, no known tribal cultural resources listed or determined eligible for listing in the California Register, or included in a local register of historical resources as defined in PRC Section 5020.1(k), pursuant to PRC Section 21074(a)(1), would be impacted by the Project (ESA, 2018). In addition, the County did not determine any resource that could potentially be affected by the Project to be a tribal cultural resource significant pursuant to criteria set forth in PRC Section 5024.1(c).

If any previously unrecorded archaeological resource were identified during ground-disturbing construction-related activities and were found to qualify as a tribal cultural resource pursuant to PRC Section 21074(a)(1) (determined to be eligible for listing in the California Register or in a local register of historical resources), any impacts to the resource resulting from the Project could be potentially significant. Any such potential significant impacts would be reduced to a less than significant level by implementing **Mitigation Measure CUL-1**. **Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources**, by ensuring that work immediately halt in the vicinity of a find until a qualified archaeologist can make an assessment and provide additional recommendations if necessary, including contacting Native American tribes (refer to Section 5, Cultural Resources).

References

ESA, *Deer Creek I Solar Project, Tulare County, California, Cultural Resources Survey Report.* Prepared for Deer Creek Solar I LLC, December 2017.

Southern San Joaquin Valley Information Center (NWIC), File No. 17-463 California Historical Resources Information System at California State State University, Bakersfield. On file at ESA, October 10, 2017.

2.19 Utilities and Service Systems

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	UTILITIES AND SERVICE SYSTEMS — Would the project:				
a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
c)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d)	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a) ***No Impact.***

Water and Wastewater Treatment

The Project would not require or include any new sewer connections or require the construction or relocation of new water or wastewater facilities. The Project would not require the expansion of existing facilities since there would be no new wastewater treatment facilities created. As described in Section 1.4.6, during Project construction-, operation-, and decommissioning-related activities, portable units would serve as restroom facilities and would be serviced by licensed providers with adequate capacity to serve the Project. Sanitary waste from the Project would be disposed of at a disposal or waste treatment facility. The Project would generate a minimal amount of wastewater and would cause no impact regarding the construction or expansion of wastewater treatment facilities.

The Project would require water use during construction for site preparation such as soil compaction, grading, dust control, and other uses. During operation, approximately four acre-feet of water would be used per year of operation for panel washing and dust control. Water required for construction and operation would be supplied by an existing on-site well. No new or expanded water facilities would be required; therefore, no impact would occur.

Storm Water Drainage

No stormwater drainage facilities are proposed to be relocated, constructed, or expanded as part of the Project. Minimal grading will be required for the proposed Project; therefore, construction, operation-, and decommissioning of the Project would result in very little change to the existing drainage pattern. The amount of increased runoff generated from the impervious surfaces would be minimal and would likely infiltrate into the ground. Water from panel washing would evaporate or be absorbed into the pervious ground underneath the panels. As a result, the Project would not increase or alter runoff patterns such that new or expanded stormwater drainage facilities would be required. Thus, no impact would occur with regard to this criterion

Electric Power, Natural Gas, and Telecommunications

As described in Section 2.6, Energy, the Project consists of constructing 378-acre PV facility which would generate up to 70 MW of electricity generated from renewable sources. The Project would provide a new source of electricity and would primarily use existing SCE infrastructure. The Project would not generate a new demand for electric energy or natural gas and would not require or result in the construction of additional energy facilities to meet its energy demand. Additionally, the Project would not result in the need for new telecommunications facilities. Therefore, no impact would occur.

b) ***Less than Significant.*** Water usage during construction-related activities is anticipated to be approximately 147 acre-feet. The main use of water during construction-related activities would be for soil compaction and dust control for grading of access road foundations, equipment pads and other Project components. During operation, approximately, two acre-feet per year would be used for panel washing and two acre-feet per year for dust control. Construction- and operational-related water would be supplied from an existing on-site water as indicated in the Water Supply Assessment prepared for the proposed Project (Dudek, 2018; Appendix F; see Appendix F, pages 3 and 5, included in this document). The water source for the well is groundwater from the Tule Subbasin of the San Joaquin Groundwater Basin. No other water sources are proposed or necessary to supply the construction- and operational-related water demand. The Water Supply Assessment evaluated the water supply under normal-year, single-dry-year, and multiple dry-year conditions over a 20-year projection, accounting for the projected water demand of the proposed Project in addition to other existing and planned future uses of the identified water supply. Based on this evaluation, adequate water supply is available to support the construction- and annual operational-related activities water demand of the proposed project. In short, there would be sufficient water supplies for Project construction and operation. The impact would be less than significant.

c) ***No Impact.*** No new sewer connections are proposed as part of the Project and it would not require or exceed wastewater treatment capacity. During Project construction-, operation-, and decommissioning-related activities, portable units would serve as restroom facilities and would be serviced weekly (construction/decommissioning) by licensed providers with adequate capacity to serve the Project. As a result, the construction-, operation-, and decommissioning-related activities of the Project would not cause a wastewater treatment provider to determine that it has inadequate capacity to serve the Project's projected demand in addition to its existing commitments; therefore, no impact would occur.

d) ***Less than Significant.*** The proposed Project is not anticipated to generate large volumes of solid waste during construction-, operation-, or decommissioning-related activities. Non-hazardous waste generated during construction-related activities would consist mostly of general construction-related materials such as concrete, wood, brick, glass, plastics, scrap metal, and similar materials. Construction-related waste generated at the Project site would be sorted into recyclables and non-recyclables and stored in dumpsters which would be serviced by a licensed solid-waste hauler. In order to properly recycle or dispose of construction-related waste, contractors and workers would be educated on waste sorting and measures to reduce landfill waste.

California's Green Building Standards Code (CALGreen; Title 24 Cal. Code Regs., Part 11) requires that nonresidential building projects recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste, or meet a local construction and demolition waste management ordinance, whichever is more stringent (§ 5.408.1). The Tulare County Construction and Demolition Ordinance, would require the Applicant to divert 100 percent of inert waste and 50 percent of all other waste, prepare and implement a C&D Debris Recycling and Reuse Plan, and develop a C&D Debris Recycling and Reuse Compliance report to be submitted after project completion (Tulare County, 2019; Tulare County 2006). In order to obtain a building permit, the Applicant would be required to comply with the Tulare County C&D Ordinance. By diverting 100 percent of inert waste and 50 percent of all other waste, the Applicant would not generate waste in excess of state or local standards.

Any waste that cannot be recycled would be transported to the Tulare County Solid Waste Department-operated Teapot Dome Landfill located near Porterville. Construction-related activity is anticipated to generate approximately 500 cubic yards of solid waste over the total construction-related period. Teapot Dome landfill is permitted to accept 800 tons/day of solid waste. The landfill has a remaining capacity of 712,861 cubic yards out of a total maximum capacity of 8,320,307 cubic yards and has an estimated closure date of 2022 (CalRecycle, 2017). The proposed Project is not anticipated to generate a significant amount of solid waste and Teapot Dome is anticipated to have sufficient space to accommodate the Project needs through construction-related activities. In the event that Teapot Dome is either closed or at capacity the waste could be transported to the Visalia Disposal Site located near Visalia; or Woodville Landfill located approximately 16 miles northwest of the Project location. The Visalia Disposal Site is permitted to accept 2,000 tons/day and has a total permitted capacity of 18,630,666 cubic yards. As of March 31, 2014, the disposal site had approximately 14,815,501 cubic yards of remaining capacity (CalRecycle 2018). According to the Tulare County Solid Waste Department, the Visalia Disposal Site will continue to accept waste until approximately 2050 (Tulare County Solid Waste Department, 2019). The Tulare County Solid Waste Department is anticipating an expansion of the Woodville Landfill to be opened in 2022 with sufficient capacity to accommodate solid waste until 2074 (Tulare County, 2018).

If, and when, Project decommissioning occurs, facility equipment and structures would be removed in order to return the Project site to its pre-construction condition. A collection and recycling program would be executed to promote the recycling of Project components and minimize disposal of Project components in landfills. Therefore, the Project is anticipated to generate a minimal amount of waste during decommissioning-related activities. The Project has an anticipated lifetime

of approximately 35 years. Therefore, at the time of decommissioning, it is likely that both the Teapot Dome and Visalia landfills would no longer be permitted to accept solid waste. In the case that these facilities are no longer operational, the proposed Project would transport any solid waste to the closest permitted landfill at the date of decommissioning; which will likely be Woodville Landfill. During O&M-related activities, the Project would generate a small amount of waste associated with maintenance activities, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Up to one (1) cubic yard of waste per week would be accumulated in an on-site dumpster that would be collected weekly by a commercial waste management service. Therefore, the impact would be less than significant impact.

e) ***No Impact.*** Waste generated during Project construction-, operation-, or decommissioning-related activities would be recycled or disposed of in a manner that is consistent with all applicable federal, state, and local recycling reduction and waste requirements and policies. Therefore, the Project would not result in any impacts related to conflicts with statutes and regulations regarding solid waste.

References

California Building Standards Commission (CBSC), 2016. 2016 California Green Building Standards Code. California Code of Regulations, Title 24, Part 11. Effective January 1, 2017. https://codes.iccsafe.org/public/document/details/toc/1049.

California Department of Resources Recycling and Recovery (CalRecycle), 2017. "Facility/Site Summary Details: Teapot Dome Disposal Site (54-AA-0004). Accessed at: http://www.calrecycle.ca.gov/SWFacilities/Directory/54-AA-0004/Detail/.

California Department of Resources Recycling and Recovery (CalRecycle), 2018. "Facility/Site Summary Details: Visalia Disposal Site (54-AA-0009). Accessed at: http://www.calrecycle.ca.gov/SWFacilities/Directory/54-AA-0009/Detail/.

Dudek, Water Supply Assessment for the Deer Creek Solar Project, Tulare County, California, August, 2018.

Tulare County, 2019. Construction and Demolition Debris. http://tularecounty.ca.gov/solidwaste/index.cfm/c-d/.

Tulare County, 2006. Tulare County Code, Article 10, Recycling and Diversion of Construction and Demolition Debris.

Tulare County Solid Waste Department. Phone Conversation between Jonah Trevino (Tulare County) and Jessica O'Dell (ESA) on March 28, 2019.

2.20 Wildfire

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion

The Project site is not located in or near a State Responsibility Area (CALFIRE, 2016). The site has not been zoned for fire severity by CALFIRE (CALFIRE, 2007). Mapping of Fire Hazard Severity Zones by Tulare County demonstrates that the Project site is within a "moderate" fire hazard severity zone (Tulare County, 2016).

a) ***No Impact.*** As described in Section 2.8 Hazards and Hazardous Materials, construction and operation of the Project would not require closures of public roads and would not significantly affect current levels of service on area roads. The Project is not located in an area where it could restrict access to evacuation routes, shelter sites for nearby populations. The Project would not impair access to or operation of the Emergency Command Center as no roads would be blocked during construction-related activities. In addition, the Project site is not located in or near a State Responsibility Area or land classified as very high fire hazard severity zone; therefore, no impact would occur.

b) ***No Impact.*** The Project would involve the construction of a solar facility and associated infrastructure and would not have any occupants. Rural residences are scattered around the Project site, the closest resident to the Project site is approximately 200 feet from the Project's southwest boundary. CALFIRE Fire Hazard Severity Zone mapping accounts for factors such as fuel type, vegetation density, slope and terrain features, and fire history (CALFIRE). The Project site is flat and vegetation on the Project site is mostly characterized by agricultural crops such as wheat and oat.

During construction the presence of construction equipment and vehicles, which could cause a spark, could result in a slight increase in the risk of ignition. However, the Project is not located within a high or very high fire hazard severity zone. Additionally, Project site characteristics such

as the slope (flat) and the vegetation type (agricultural fields) do not make the Project site a high-risk area for wildland fire (CALFIRE, 2000). Additionally, as noted in the Tulare County General Plan, out of the total 610 wildfires that occurred in Tulare County from 1910 to 2014, only 4% of fires were the result of equipment use (Tulare County, 2016). Due to the short duration of the construction period and the Project's location in an area that is not a high risk area for wildfire, Project construction would not significantly exacerbate wildfire risks during construction.

During Project operation, the Project would interconnect to the existing SCE-substation with a 60-foot long overhead line. Electrical lines can start a fire if an object such as a tree limb, kite, or mylar balloon simultaneously contacts the power line conductors and a second object, such as the ground or a portion of the supporting pole. System component failures and accidents during maintenance activities can also cause line faults that result in arcing on power lines. The operation of the overhead interconnection line could result in an additional potential source of ignition. However, due to the short length of the line, and the fact that the majority of the line crosses over paved areas, the increase in risk would be minimal. Additionally, as described in Section 1.3.11, Security and Safety, in order to limit fire risk, maintenance would include the management and removal of combustible vegetation around the Project site boundary. Project site perimeter roads would serve as fire breaks.

Project decommissioning would require the dismantling and removal of project equipment and the restoration of the Project site. Increases in wildfire risks during decommissioning would be similar to project construction. The Project site is not located in or near a State Responsibility Area or land classified as very high fire hazard severity zone. As a result, project construction, operation, and decommissioning would not significantly exacerbate wildfire risks and would not expose project occupants or nearby residents to the risk of the uncontrollable spread of wildfire or pollutant concentrations resulting from a wildfire. No impact would occur.

c) ***No Impact.*** As described in Section 1.3.11, the Project site's perimeter roads would serve as fire breaks and maintenance activities would include the management and removal of combustible vegetation. The Project would require the construction of the solar facility and associated infrastructure described in Section 1.3, Project Components. The potential for these project components to have an impact on the environment is analyzed throughout Chapter 2 of this Initial Study on a resource by resource basis. In addition, the Project site is not located in or near a State Responsibility Area or land classified as very high fire hazard severity zone; therefore, no impact would occur.

d) ***No Impact.*** As described in Section 2.9, Hydrology and Water Quality, under item c), the terrain and soil conditions on the Project site are not conducive to substantial erosion. Additionally, although grading and the addition of impervious surfaces would be limited, the implementation of a SWPPP would reduce impacts to onsite drainage patterns to a less than significant level.

As mentioned under criteria b), above, Project construction, operation, and decommissioning would not significantly increase the risk of wildfire. Because the Project would have a low potential to exacerbate wildfire risk, it also would not pose a substantial risk of causing post-fire slope instability in the study area. Therefore, the potential for Project operation to exacerbate the risk of flooding and mudslides as a result of post-fire slope instability would be low. In addition, the Project site is not located in or near a State Responsibility Area or land classified as very high fire hazard severity zone; therefore, no impact would occur.

References

CALFIRE. Guidelines for Fire Hazard Zoning Review and Validation.

CALFIRE, 2000. Fire Environments. http://frap.fire.ca.gov/data/frapgismaps/pdfs/fire_envmap.pdf

CALFIRE, 2007. Draft Fire Hazard Severity Zones in Local Responsibility Area. Updated 6/2008. http://frap.fire.ca.gov/webdata/maps/tulare/fhszl06_1_map.54.pdf

CALFIRE, 2016. State Responsibility Area Viewer. Available at: http://www.fire.ca.gov/fireprevention fee/sraviewer

Tulare County, 2016. Tulare County General Plan, 2030 Update. Available at: http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/GENERAL%20PLAN%202012.pdf

2.21 Mandatory Findings of Significance

	Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
	MANDATORY FINDINGS OF SIGNIFICANCE —				
a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

a) ***Less than Significant with Mitigation.*** The proposed Project would be located in an area that has been previously disturbed by agricultural uses. Although there are biological resources in the Project area, as described in Section 2.4, Biological Resources, the potential impacts of the Project to biological resources would be reduced to less-than-significant with implementation of recommended Mitigation Measures BIO-1 through BIO-7. Therefore, the proposed Project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal.

The Project site does not contain any known sensitive cultural resources, as described in Section 2.5, Cultural Resources. Implementation of Mitigation Measure CUL-1 would ensure that the proposed Project would not eliminate important examples of the major periods of California history or prehistory.

b) ***Less than Significant with Mitigation.*** Potential impacts associated with the proposed Project include impacts on air quality, biological resources, cultural resources, hazards, noise, and tribal cultural resources. These impacts are primarily construction-related activities over short-term, temporary, and intermittent durations and would be mitigated to less-than-significant levels. Potential short-term cumulative impacts could only occur if construction-related activities of the proposed Project occurred simultaneously with other projects in the vicinity. No other projects are located near the Project site; therefore, implementation of the proposed Project would predominantly result in short-term, temporary, and intermittent impacts that would be mitigated to less-than-significant levels, when considered in conjunction with other past, present, or future

projects within the vicinity of the Project. As such, the Project's contribution to any cumulative impacts would be less than considerable and impacts would be less than significant with mitigation.

c) ***Less than Significant with Mitigation.*** The proposed Project has the potential to have environmental effects that could cause substantial direct or indirect adverse effects on human beings; however, the implementation of Mitigation Measures AQ-1, HAZ-1 and -2, and NOI-1 would reduce impacts to less-than-significant levels.

Appendix A
Air Quality

ESA

Deer Creek Solar

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	378.00	User Defined Unit	378.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project site is 378 acres

Construction Phase - Assumed construction phasing is based on information provided by the applicant.

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment -

Off-road Equipment - Construction equipment provided by applicant. Other Construction equipment is "Carts/ATVs".

Off-road Equipment - Just concrete truck deliveries

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment - Construction equipment provided by applicant.Other Construction equipment is "Carts/ATVs". Tractors are assuned to support post drivers.

Off-road Equipment - Construction equipment provided by applicant. Other Construction equipment is "Carts/ATVs"

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment - Just water tankers

Trips and VMT - Assumed work and haul trips based on information provided by the applicant. Aggregate trips based on 28,000 cy estimate.

Grading - Note that acres graded are default calculations based on equipment list and grading days. Refer to page 9 of CalEEMod Apx A.

Vehicle Trips - Assumes 5 workers to clean solar panels over 40 days 4 time per year or 1600 annual trips.

Construction Off-road Equipment Mitigation - Tier 4 engines as mitigation

Fleet Mix - Removed buses, MH, and HHD trucks from fleet mix for workers commuting to site and allocated those pecentages as LDT1 (pick up trucks).

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	240.00	5.00
tblConstructionPhase	NumDays	620.00	65.00
tblConstructionPhase	NumDays	440.00	65.00
tblConstructionPhase	NumDays	6,200.00	47.00
tblConstructionPhase	NumDays	6,200.00	60.00
tblConstructionPhase	NumDays	6,200.00	152.00
tblFleetMix	HHD	0.08	0.00

tblFleetMix	LDT1	0.03	0.12
tblFleetMix	MH	7.6100e-004	0.00
tblFleetMix	OBUS	1.8220e-003	0.00
tblFleetMix	SBUS	1.1320e-003	0.00
tblFleetMix	UBUS	1.3110e-003	0.00
tblLandUse	LotAcreage	0.00	378.00
tblOffRoadEquipment	HorsePower	367.00	80.00
tblOffRoadEquipment	LoadFactor	0.48	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,506.00
tblTripsAndVMT	HaulingTripNumber	0.00	472.00
tblTripsAndVMT	HaulingTripNumber	0.00	2,288.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50

tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripNumber	53.00	25.00
tblTripsAndVMT	WorkerTripNumber	28.00	50.00
tblTripsAndVMT	WorkerTripNumber	8.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	17.50
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	0.02

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.6798	7.6107	5.2542	0.0130	0.3699	0.3178	0.6877	0.1403	0.2951	0.4354	0.0000	1,166.4868	1,166.4868	0.2360	0.0000	1,172.3859
Maximum	**0.6798**	**7.6107**	**5.2542**	**0.0130**	**0.3699**	**0.3178**	**0.6877**	**0.1403**	**0.2951**	**0.4354**	**0.0000**	**1,166.4868**	**1,166.4868**	**0.2360**	**0.0000**	**1,172.3859**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2192	4.6099	6.2030	0.0130	0.3699	0.0249	0.3948	0.1403	0.0246	0.1650	0.0000	1,166.4859	1,166.4859	0.2360	0.0000	1,172.3850
Maximum	**0.2192**	**4.6099**	**6.2030**	**0.0130**	**0.3699**	**0.0249**	**0.3948**	**0.1403**	**0.0246**	**0.1650**	**0.0000**	**1,166.4859**	**1,166.4859**	**0.2360**	**0.0000**	**1,172.3850**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**67.75**	**39.43**	**-18.06**	**0.00**	**0.00**	**92.16**	**42.59**	**0.00**	**91.65**	**62.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	4.9475	2.6854
2	4-1-2020	6-30-2020	2.1450	1.3340
3	7-1-2020	9-30-2020	1.1265	0.7464
		Highest	4.9475	2.6854

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.1800e-003	7.4600e-003	0.0365	1.1000e-004	0.0104	9.0000e-005	0.0105	2.7700e-003	9.0000e-005	2.8500e-003	0.0000	9.8196	9.8196	2.9000e-004	0.0000	9.8269
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5100e-003**	**7.4900e-003**	**0.0400**	**1.1000e-004**	**0.0104**	**1.0000e-004**	**0.0105**	**2.7700e-003**	**1.0000e-004**	**2.8600e-003**	**0.0000**	**9.8263**	**9.8263**	**3.1000e-004**	**0.0000**	**9.8341**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.1800e-003	7.4600e-003	0.0365	1.1000e-004	0.0104	9.0000e-005	0.0105	2.7700e-003	9.0000e-005	2.8500e-003	0.0000	9.8196	9.8196	2.9000e-004	0.0000	9.8269
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5100e-003**	**7.4900e-003**	**0.0400**	**1.1000e-004**	**0.0104**	**1.0000e-004**	**0.0105**	**2.7700e-003**	**1.0000e-004**	**2.8600e-003**	**0.0000**	**9.8263**	**9.8263**	**3.1000e-004**	**0.0000**	**9.8341**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Staging	Site Preparation	1/1/2020	1/7/2020	5	5	
2	Site Grading	Grading	1/8/2020	4/7/2020	5	65	
3	Water Deliveries	Trenching	1/8/2020	10/27/2020	5	210	
4	Concrete Deliveries	Trenching	1/8/2020	10/27/2020	5	210	
5	Aggregate Delivery	Trenching	1/8/2020	4/7/2020	5	65	
6	Access Road Construction	Paving	1/8/2020	4/7/2020	5	65	
7	Collection Line Construction	Building Construction	1/14/2020	3/18/2020	5	47	
8	Substation Construction	Building Construction	1/14/2020	4/6/2020	5	60	
9	Solar Array Installation	Building Construction	1/21/2020	8/19/2020	5	152	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Staging	Forklifts	1	7.00	89	0.20
Staging	Generator Sets	2	10.00	84	0.74
Staging	Graders	1	7.00	187	0.41
Staging	Off-Highway Trucks	6	5.00	402	0.38
Staging	Other Construction Equipment	8	5.00	172	0.42
Staging	Rubber Tired Dozers	0	8.00	247	0.40
Staging	Scrapers	1	7.00	80	0.38

Staging	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Staging	Trenchers	1	7.00	78	0.50
Water Deliveries	Aerial Lifts	0	1.00	63	0.31
Concrete Deliveries	Aerial Lifts	0	1.00	63	0.31
Site Grading	Excavators	0	8.00	158	0.38
Site Grading	Graders	1	7.00	187	0.41
Site Grading	Off-Highway Trucks	3	2.00	402	0.38
Site Grading	Other Construction Equipment	3	2.00	172	0.42
Site Grading	Rollers	1	7.00	80	0.38
Site Grading	Rubber Tired Dozers	1	7.00	247	0.40
Site Grading	Scrapers	1	7.00	367	0.48
Site Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Access Road Construction	Graders	1	8.00	187	0.41
Access Road Construction	Pavers	0	8.00	130	0.42
Access Road Construction	Paving Equipment	0	8.00	132	0.36
Access Road Construction	Rollers	1	7.00	80	0.38
Access Road Construction	Rubber Tired Dozers	1	7.00	247	0.40
Aggregate Delivery	Aerial Lifts	0	1.00	63	0.31
Collection Line Construction	Aerial Lifts	2	2.00	63	0.31
Collection Line Construction	Cranes	1	4.00	231	0.29
Collection Line Construction	Forklifts	1	7.00	89	0.20
Collection Line Construction	Generator Sets	1	1.00	84	0.74
Collection Line Construction	Off-Highway Trucks	2	2.00	402	0.38
Collection Line Construction	Other Construction Equipment	1	2.00	172	0.42
Collection Line Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Collection Line Construction	Welders	0	8.00	46	0.45
Substation Construction	Aerial Lifts	2	4.00	63	0.31

Substation Construction	Cranes	1	2.00	231	0.29
Substation Construction	Forklifts	1	4.00	89	0.20
Substation Construction	Generator Sets	0	8.00	84	0.74
Substation Construction	Off-Highway Trucks	1	2.00	402	0.38
Substation Construction	Other Construction Equipment	1	2.00	172	0.42
Substation Construction	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Substation Construction	Trenchers	4	2.00	78	0.50
Substation Construction	Welders	0	8.00	46	0.45
Solar Array Installation	Cranes	0	7.00	231	0.29
Solar Array Installation	Forklifts	5	4.00	89	0.20
Solar Array Installation	Generator Sets	4	4.00	84	0.74
Solar Array Installation	Off-Highway Tractors	7	4.00	124	0.44
Solar Array Installation	Off-Highway Trucks	4	2.00	402	0.38
Solar Array Installation	Other Construction Equipment	8	3.00	172	0.42
Solar Array Installation	Skid Steer Loaders	2	4.00	65	0.37
Solar Array Installation	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Solar Array Installation	Trenchers	4	1.00	78	0.50
Solar Array Installation	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Staging	21	25.00	0.00	72.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Water Deliveries	0	0.00	40.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Deliveries	0	0.00	0.00	50.00	16.80	6.60	15.00	LD_Mix	HDT_Mix	HHDT
Site Grading	11	50.00	0.00	72.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Access Road Construction	3	23.00	0.00	0.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Aggregate Delivery	0	0.00	0.00	3,506.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Collection Line Construction	11	23.00	0.00	472.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Substation Construction	14	23.00	0.00	0.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array Installation	35	23.00	0.00	2,288.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Staging - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4800e-003	0.0000	3.4800e-003	3.8000e-004	0.0000	3.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0184	0.1839	0.1326	2.8000e-004		9.0100e-003	9.0100e-003		8.3800e-003	8.3800e-003	0.0000	24.5267	24.5267	6.9900e-003	0.0000	24.7014
Total	**0.0184**	**0.1839**	**0.1326**	**2.8000e-004**	**3.4800e-003**	**9.0100e-003**	**0.0125**	**3.8000e-004**	**8.3800e-003**	**8.7600e-003**	**0.0000**	**24.5267**	**24.5267**	**6.9900e-003**	**0.0000**	**24.7014**

3.2 Staging - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	0.0101	1.6700e-003	3.0000e-005	6.1000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7337	2.7337	9.0000e-005	0.0000	2.7360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.0000e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6851	0.6851	2.0000e-005	0.0000	0.6856
Total	**7.1000e-004**	**0.0104**	**4.6700e-003**	**4.0000e-005**	**1.4200e-003**	**4.0000e-005**	**1.4600e-003**	**3.8000e-004**	**3.0000e-005**	**4.2000e-004**	**0.0000**	**3.4188**	**3.4188**	**1.1000e-004**	**0.0000**	**3.4216**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4800e-003	0.0000	3.4800e-003	3.8000e-004	0.0000	3.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0955	0.1752	2.8000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	24.5267	24.5267	6.9900e-003	0.0000	24.7014
Total	**4.4900e-003**	**0.0955**	**0.1752**	**2.8000e-004**	**3.4800e-003**	**4.5000e-004**	**3.9300e-003**	**3.8000e-004**	**4.5000e-004**	**8.3000e-004**	**0.0000**	**24.5267**	**24.5267**	**6.9900e-003**	**0.0000**	**24.7014**

3.2 Staging - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	0.0101	1.6700e-003	3.0000e-005	6.1000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7337	2.7337	9.0000e-005	0.0000	2.7360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.0000e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6851	0.6851	2.0000e-005	0.0000	0.6856
Total	**7.1000e-004**	**0.0104**	**4.6700e-003**	**4.0000e-005**	**1.4200e-003**	**4.0000e-005**	**1.4600e-003**	**3.8000e-004**	**3.0000e-005**	**4.2000e-004**	**0.0000**	**3.4188**	**3.4188**	**1.1000e-004**	**0.0000**	**3.4216**

3.3 Site Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2165	0.0000	0.2165	0.0990	0.0000	0.0990	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1126	1.2372	0.6932	1.5000e-003		0.0545	0.0545		0.0501	0.0501	0.0000	131.5994	131.5994	0.0426	0.0000	132.6634
Total	**0.1126**	**1.2372**	**0.6932**	**1.5000e-003**	**0.2165**	**0.0545**	**0.2710**	**0.0990**	**0.0501**	**0.1491**	**0.0000**	**131.5994**	**131.5994**	**0.0426**	**0.0000**	**132.6634**

3.3 Site Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	0.0101	1.6700e-003	3.0000e-005	6.1000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7337	2.7337	9.0000e-005	0.0000	2.7360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	7.8600e-003	0.0780	2.0000e-004	0.0210	1.4000e-004	0.0211	5.5700e-003	1.3000e-004	5.7000e-003	0.0000	17.8122	17.8122	5.4000e-004	0.0000	17.8256
Total	**0.0113**	**0.0179**	**0.0797**	**2.3000e-004**	**0.0216**	**1.7000e-004**	**0.0218**	**5.7400e-003**	**1.6000e-004**	**5.9000e-003**	**0.0000**	**20.5459**	**20.5459**	**6.3000e-004**	**0.0000**	**20.5616**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2165	0.0000	0.2165	0.0990	0.0000	0.0990	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.4501	0.8672	1.5000e-003		2.4500e-003	2.4500e-003		2.4500e-003	2.4500e-003	0.0000	131.5992	131.5992	0.0426	0.0000	132.6633
Total	**0.0249**	**0.4501**	**0.8672**	**1.5000e-003**	**0.2165**	**2.4500e-003**	**0.2189**	**0.0990**	**2.4500e-003**	**0.1015**	**0.0000**	**131.5992**	**131.5992**	**0.0426**	**0.0000**	**132.6633**

3.3 Site Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	0.0101	1.6700e-003	3.0000e-005	6.1000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7337	2.7337	9.0000e-005	0.0000	2.7360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	7.8600e-003	0.0780	2.0000e-004	0.0210	1.4000e-004	0.0211	5.5700e-003	1.3000e-004	5.7000e-003	0.0000	17.8122	17.8122	5.4000e-004	0.0000	17.8256
Total	**0.0113**	**0.0179**	**0.0797**	**2.3000e-004**	**0.0216**	**1.7000e-004**	**0.0218**	**5.7400e-003**	**1.6000e-004**	**5.9000e-003**	**0.0000**	**20.5459**	**20.5459**	**6.3000e-004**	**0.0000**	**20.5616**

3.4 Water Deliveries - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Water Deliveries - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0157	0.4910	0.0972	1.1000e-003	0.0251	2.6400e-003	0.0278	7.2600e-003	2.5200e-003	9.7800e-003	0.0000	104.3454	104.3454	5.1400e-003	0.0000	104.4740
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.4910**	**0.0972**	**1.1000e-003**	**0.0251**	**2.6400e-003**	**0.0278**	**7.2600e-003**	**2.5200e-003**	**9.7800e-003**	**0.0000**	**104.3454**	**104.3454**	**5.1400e-003**	**0.0000**	**104.4740**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Water Deliveries - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0157	0.4910	0.0972	1.1000e-003	0.0251	2.6400e-003	0.0278	7.2600e-003	2.5200e-003	9.7800e-003	0.0000	104.3454	104.3454	5.1400e-003	0.0000	104.4740
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.4910**	**0.0972**	**1.1000e-003**	**0.0251**	**2.6400e-003**	**0.0278**	**7.2600e-003**	**2.5200e-003**	**9.7800e-003**	**0.0000**	**104.3454**	**104.3454**	**5.1400e-003**	**0.0000**	**104.4740**

3.5 Concrete Deliveries - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Concrete Deliveries - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	5.8700e-003	9.4000e-004	2.0000e-005	3.2000e-004	2.0000e-005	3.4000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.4969	1.4969	6.0000e-005	0.0000	1.4984
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**5.8700e-003**	**9.4000e-004**	**2.0000e-005**	**3.2000e-004**	**2.0000e-005**	**3.4000e-004**	**9.0000e-005**	**2.0000e-005**	**1.1000e-004**	**0.0000**	**1.4969**	**1.4969**	**6.0000e-005**	**0.0000**	**1.4984**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Concrete Deliveries - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	5.8700e-003	9.4000e-004	2.0000e-005	3.2000e-004	2.0000e-005	3.4000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.4969	1.4969	6.0000e-005	0.0000	1.4984
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**5.8700e-003**	**9.4000e-004**	**2.0000e-005**	**3.2000e-004**	**2.0000e-005**	**3.4000e-004**	**9.0000e-005**	**2.0000e-005**	**1.1000e-004**	**0.0000**	**1.4969**	**1.4969**	**6.0000e-005**	**0.0000**	**1.4984**

3.6 Aggregate Delivery - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Aggregate Delivery - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0141	0.4898	0.0812	1.4000e-003	0.0299	1.6900e-003	0.0316	8.2200e-003	1.6200e-003	9.8400e-003	0.0000	133.1151	133.1151	4.4700e-003	0.0000	133.2269
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.4898**	**0.0812**	**1.4000e-003**	**0.0299**	**1.6900e-003**	**0.0316**	**8.2200e-003**	**1.6200e-003**	**9.8400e-003**	**0.0000**	**133.1151**	**133.1151**	**4.4700e-003**	**0.0000**	**133.2269**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Aggregate Delivery - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0141	0.4898	0.0812	1.4000e-003	0.0299	1.6900e-003	0.0316	8.2200e-003	1.6200e-003	9.8400e-003	0.0000	133.1151	133.1151	4.4700e-003	0.0000	133.2269
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.4898**	**0.0812**	**1.4000e-003**	**0.0299**	**1.6900e-003**	**0.0316**	**8.2200e-003**	**1.6200e-003**	**9.8400e-003**	**0.0000**	**133.1151**	**133.1151**	**4.4700e-003**	**0.0000**	**133.2269**

3.7 Access Road Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0521	0.5870	0.2303	5.3000e-004		0.0261	0.0261		0.0240	0.0240	0.0000	46.8479	46.8479	0.0152	0.0000	47.2267
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0521**	**0.5870**	**0.2303**	**5.3000e-004**		**0.0261**	**0.0261**		**0.0240**	**0.0240**	**0.0000**	**46.8479**	**46.8479**	**0.0152**	**0.0000**	**47.2267**

3.7 Access Road Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0500e-003	3.6200e-003	0.0359	9.0000e-005	9.6400e-003	6.0000e-005	9.7100e-003	2.5600e-003	6.0000e-005	2.6200e-003	0.0000	8.1936	8.1936	2.5000e-004	0.0000	8.1998
Total	**5.0500e-003**	**3.6200e-003**	**0.0359**	**9.0000e-005**	**9.6400e-003**	**6.0000e-005**	**9.7100e-003**	**2.5600e-003**	**6.0000e-005**	**2.6200e-003**	**0.0000**	**8.1936**	**8.1936**	**2.5000e-004**	**0.0000**	**8.1998**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1600e-003	0.1532	0.2995	5.3000e-004		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	46.8478	46.8478	0.0152	0.0000	47.2266
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1600e-003**	**0.1532**	**0.2995**	**5.3000e-004**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**46.8478**	**46.8478**	**0.0152**	**0.0000**	**47.2266**

3.7 Access Road Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0500e-003	3.6200e-003	0.0359	9.0000e-005	9.6400e-003	6.0000e-005	9.7100e-003	2.5600e-003	6.0000e-005	2.6200e-003	0.0000	8.1936	8.1936	2.5000e-004	0.0000	8.1998
Total	**5.0500e-003**	**3.6200e-003**	**0.0359**	**9.0000e-005**	**9.6400e-003**	**6.0000e-005**	**9.7100e-003**	**2.5600e-003**	**6.0000e-005**	**2.6200e-003**	**0.0000**	**8.1936**	**8.1936**	**2.5000e-004**	**0.0000**	**8.1998**

3.8 Collection Line Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0335	0.3427	0.2825	5.2000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	45.7639	45.7639	0.0144	0.0000	46.1228
Total	**0.0335**	**0.3427**	**0.2825**	**5.2000e-004**		**0.0179**	**0.0179**		**0.0165**	**0.0165**	**0.0000**	**45.7639**	**45.7639**	**0.0144**	**0.0000**	**46.1228**

3.8 Collection Line Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-003	0.0659	0.0109	1.9000e-004	4.0300e-003	2.3000e-004	4.2500e-003	1.1100e-003	2.2000e-004	1.3200e-003	0.0000	17.9208	17.9208	6.0000e-004	0.0000	17.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6500e-003	2.6200e-003	0.0260	7.0000e-005	6.9700e-003	5.0000e-005	7.0200e-003	1.8500e-003	4.0000e-005	1.9000e-003	0.0000	5.9246	5.9246	1.8000e-004	0.0000	5.9291
Total	**5.5500e-003**	**0.0686**	**0.0369**	**2.6000e-004**	**0.0110**	**2.8000e-004**	**0.0113**	**2.9600e-003**	**2.6000e-004**	**3.2200e-003**	**0.0000**	**23.8454**	**23.8454**	**7.8000e-004**	**0.0000**	**23.8649**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9400e-003	0.1902	0.3414	5.2000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003	0.0000	45.7638	45.7638	0.0144	0.0000	46.1228
Total	**9.9400e-003**	**0.1902**	**0.3414**	**5.2000e-004**		**1.2700e-003**	**1.2700e-003**		**1.2700e-003**	**1.2700e-003**	**0.0000**	**45.7638**	**45.7638**	**0.0144**	**0.0000**	**46.1228**

3.8 Collection Line Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-003	0.0659	0.0109	1.9000e-004	4.0300e-003	2.3000e-004	4.2500e-003	1.1100e-003	2.2000e-004	1.3200e-003	0.0000	17.9208	17.9208	6.0000e-004	0.0000	17.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6500e-003	2.6200e-003	0.0260	7.0000e-005	6.9700e-003	5.0000e-005	7.0200e-003	1.8500e-003	4.0000e-005	1.9000e-003	0.0000	5.9246	5.9246	1.8000e-004	0.0000	5.9291
Total	**5.5500e-003**	**0.0686**	**0.0369**	**2.6000e-004**	**0.0110**	**2.8000e-004**	**0.0113**	**2.9600e-003**	**2.6000e-004**	**3.2200e-003**	**0.0000**	**23.8454**	**23.8454**	**7.8000e-004**	**0.0000**	**23.8649**

3.9 Substation Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0406	0.4061	0.3418	5.5000e-004		0.0239	0.0239		0.0220	0.0220	0.0000	48.2814	48.2814	0.0156	0.0000	48.6718
Total	**0.0406**	**0.4061**	**0.3418**	**5.5000e-004**		**0.0239**	**0.0239**		**0.0220**	**0.0220**	**0.0000**	**48.2814**	**48.2814**	**0.0156**	**0.0000**	**48.6718**

3.9 Substation Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	3.3400e-003	0.0331	8.0000e-005	8.9000e-003	6.0000e-005	8.9600e-003	2.3700e-003	5.0000e-005	2.4200e-003	0.0000	7.5634	7.5634	2.3000e-004	0.0000	7.5690
Total	**4.6600e-003**	**3.3400e-003**	**0.0331**	**8.0000e-005**	**8.9000e-003**	**6.0000e-005**	**8.9600e-003**	**2.3700e-003**	**5.0000e-005**	**2.4200e-003**	**0.0000**	**7.5634**	**7.5634**	**2.3000e-004**	**0.0000**	**7.5690**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0111	0.2219	0.3835	5.5000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	48.2814	48.2814	0.0156	0.0000	48.6717
Total	**0.0111**	**0.2219**	**0.3835**	**5.5000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**48.2814**	**48.2814**	**0.0156**	**0.0000**	**48.6717**

3.9 Substation Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	3.3400e-003	0.0331	8.0000e-005	8.9000e-003	6.0000e-005	8.9600e-003	2.3700e-003	5.0000e-005	2.4200e-003	0.0000	7.5634	7.5634	2.3000e-004	0.0000	7.5690
Total	**4.6600e-003**	**3.3400e-003**	**0.0331**	**8.0000e-005**	**8.9000e-003**	**6.0000e-005**	**8.9600e-003**	**2.3700e-003**	**5.0000e-005**	**2.4200e-003**	**0.0000**	**7.5634**	**7.5634**	**2.3000e-004**	**0.0000**	**7.5690**

3.10 Solar Array Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3444	3.4352	3.0673	5.2700e-003		0.1802	0.1802		0.1682	0.1682	0.0000	460.9123	460.9123	0.1261	0.0000	464.0653
Total	**0.3444**	**3.4352**	**3.0673**	**5.2700e-003**		**0.1802**	**0.1802**		**0.1682**	**0.1682**	**0.0000**	**460.9123**	**460.9123**	**0.1261**	**0.0000**	**464.0653**

3.10 Solar Array Installation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3196	0.0530	9.1000e-004	0.0195	1.1000e-003	0.0206	5.3700e-003	1.0600e-003	6.4200e-003	0.0000	86.8703	86.8703	2.9200e-003	0.0000	86.9433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	8.4600e-003	0.0839	2.1000e-004	0.0226	1.5000e-004	0.0227	5.9900e-003	1.4000e-004	6.1300e-003	0.0000	19.1605	19.1605	5.8000e-004	0.0000	19.1749
Total	**0.0210**	**0.3281**	**0.1369**	**1.1200e-003**	**0.0421**	**1.2500e-003**	**0.0433**	**0.0114**	**1.2000e-003**	**0.0126**	**0.0000**	**106.0308**	**106.0308**	**3.5000e-003**	**0.0000**	**106.1182**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	2.0804	3.6298	5.2700e-003		0.0117	0.0117		0.0117	0.0117	0.0000	460.9117	460.9117	0.1261	0.0000	464.0647
Total	**0.0815**	**2.0804**	**3.6298**	**5.2700e-003**		**0.0117**	**0.0117**		**0.0117**	**0.0117**	**0.0000**	**460.9117**	**460.9117**	**0.1261**	**0.0000**	**464.0647**

3.10 Solar Array Installation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3196	0.0530	9.1000e-004	0.0195	1.1000e-003	0.0206	5.3700e-003	1.0600e-003	6.4200e-003	0.0000	86.8703	86.8703	2.9200e-003	0.0000	86.9433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	8.4600e-003	0.0839	2.1000e-004	0.0226	1.5000e-004	0.0227	5.9900e-003	1.4000e-004	6.1300e-003	0.0000	19.1605	19.1605	5.8000e-004	0.0000	19.1749
Total	**0.0210**	**0.3281**	**0.1369**	**1.1200e-003**	**0.0421**	**1.2500e-003**	**0.0433**	**0.0114**	**1.2000e-003**	**0.0126**	**0.0000**	**106.0308**	**106.0308**	**3.5000e-003**	**0.0000**	**106.1182**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1800e-003	7.4600e-003	0.0365	1.1000e-004	0.0104	9.0000e-005	0.0105	2.7700e-003	9.0000e-005	2.8500e-003	0.0000	9.8196	9.8196	2.9000e-004	0.0000	9.8269
Unmitigated	2.1800e-003	7.4600e-003	0.0365	1.1000e-004	0.0104	9.0000e-005	0.0105	2.7700e-003	9.0000e-005	2.8500e-003	0.0000	9.8196	9.8196	2.9000e-004	0.0000	9.8269

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	6.12	0.00	0.00	27,862	27,862
Total	6.12	0.00	0.00	27,862	27,862

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	17.50	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.516727	0.116777	0.172440	0.141085	0.022326	0.005434	0.020884	0.000000	0.000000	0.000000	0.004327	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003
Unmitigated	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003
Total	**3.3000e-004**	**3.0000e-005**	**3.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.7500e-003**	**6.7500e-003**	**2.0000e-005**	**0.0000**	**7.2000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.7500e-003	6.7500e-003	2.0000e-005	0.0000	7.2000e-003
Total	**3.3000e-004**	**3.0000e-005**	**3.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.7500e-003**	**6.7500e-003**	**2.0000e-005**	**0.0000**	**7.2000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Creek Solar

Tulare County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	378.00	User Defined Unit	378.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project site is 378 acres

Construction Phase - Assumed construction phasing is based on information provided by the applicant.

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment -

Off-road Equipment - Construction equipment provided by applicant. Other Construction equipment is "Carts/ATVs".

Off-road Equipment - Just concrete truck deliveries

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment - Construction equipment provided by applicant.Other Construction equipment is "Carts/ATVs". Tractors are assuned to support post drivers.

Off-road Equipment - Construction equipment provided by applicant. Other Construction equipment is "Carts/ATVs"

Off-road Equipment - Construction equipment provided by applicant.

Off-road Equipment - Just water tankers

Trips and VMT - Assumed work and haul trips based on information provided by the applicant. Aggregate trips based on 28,000 cy estimate.

Grading - Note that acres graded are default calculations based on equipment list and grading days. Refer to page 9 of CalEEMod Apx A.

Vehicle Trips - Assumes 5 workers to clean solar panels over 40 days 4 time per year or 1600 annual trips.

Construction Off-road Equipment Mitigation - Tier 4 engines as mitigation

Fleet Mix - Removed buses, MH, and HHD trucks from fleet mix for workers commuting to site and allocated those pecentages as LDT1 (pick up trucks).

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	240.00	5.00
tblConstructionPhase	NumDays	620.00	65.00
tblConstructionPhase	NumDays	440.00	65.00
tblConstructionPhase	NumDays	6,200.00	47.00
tblConstructionPhase	NumDays	6,200.00	60.00
tblConstructionPhase	NumDays	6,200.00	152.00
tblFleetMix	HHD	0.08	0.00

tblFleetMix	LDT1	0.03	0.12
tblFleetMix	MH	7.6100e-004	0.00
tblFleetMix	OBUS	1.8220e-003	0.00
tblFleetMix	SBUS	1.1320e-003	0.00
tblFleetMix	UBUS	1.3110e-003	0.00
tblLandUse	LotAcreage	0.00	378.00
tblOffRoadEquipment	HorsePower	367.00	80.00
tblOffRoadEquipment	LoadFactor	0.48	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,506.00
tblTripsAndVMT	HaulingTripNumber	0.00	472.00
tblTripsAndVMT	HaulingTripNumber	0.00	2,288.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50

tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripLength	16.80	17.50
tblTripsAndVMT	WorkerTripNumber	53.00	25.00
tblTripsAndVMT	WorkerTripNumber	28.00	50.00
tblTripsAndVMT	WorkerTripNumber	8.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblTripsAndVMT	WorkerTripNumber	0.00	23.00
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	17.50
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	0.02

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	14.2190	156.5771	104.6919	0.2664	10.2027	6.5216	16.7243	4.0043	6.0370	10.0413	0.0000	26,435.7715	26,435.7715	5.3603	0.0000	26,569.7795
Maximum	**14.2190**	**156.5771**	**104.6919**	**0.2664**	**10.2027**	**6.5216**	**16.7243**	**4.0043**	**6.0370**	**10.0413**	**0.0000**	**26,435.7715**	**26,435.7715**	**5.3603**	**0.0000**	**26,569.7795**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.7535	88.5538	123.4711	0.2664	10.2027	0.4897	10.6924	4.0043	0.4843	4.4886	0.0000	26,435.7715	26,435.7715	5.3603	0.0000	26,569.7795
Maximum	**4.7535**	**88.5538**	**123.4711**	**0.2664**	**10.2027**	**0.4897**	**10.6924**	**4.0043**	**0.4843**	**4.4886**	**0.0000**	**26,435.7715**	**26,435.7715**	**5.3603**	**0.0000**	**26,569.7795**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**66.57**	**43.44**	**-17.94**	**0.00**	**0.00**	**92.49**	**36.07**	**0.00**	**91.98**	**55.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0205	0.0542	0.3278	9.0000e-004	0.0822	7.0000e-004	0.0829	0.0219	6.5000e-004	0.0226		90.4573	90.4573	2.7000e-003		90.5248
Total	**0.0241**	**0.0546**	**0.3665**	**9.0000e-004**	**0.0822**	**8.4000e-004**	**0.0830**	**0.0219**	**7.9000e-004**	**0.0227**		**90.5401**	**90.5401**	**2.9200e-003**	**0.0000**	**90.6130**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0205	0.0542	0.3278	9.0000e-004	0.0822	7.0000e-004	0.0829	0.0219	6.5000e-004	0.0226		90.4573	90.4573	2.7000e-003		90.5248
Total	**0.0241**	**0.0546**	**0.3665**	**9.0000e-004**	**0.0822**	**8.4000e-004**	**0.0830**	**0.0219**	**7.9000e-004**	**0.0227**		**90.5401**	**90.5401**	**2.9200e-003**	**0.0000**	**90.6130**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Staging	Site Preparation	1/1/2020	1/7/2020	5	5	
2	Site Grading	Grading	1/8/2020	4/7/2020	5	65	
3	Water Deliveries	Trenching	1/8/2020	10/27/2020	5	210	
4	Concrete Deliveries	Trenching	1/8/2020	10/27/2020	5	210	
5	Aggregate Delivery	Trenching	1/8/2020	4/7/2020	5	65	
6	Access Road Construction	Paving	1/8/2020	4/7/2020	5	65	
7	Collection Line Construction	Building Construction	1/14/2020	3/18/2020	5	47	
8	Substation Construction	Building Construction	1/14/2020	4/6/2020	5	60	
9	Solar Array Installation	Building Construction	1/21/2020	8/19/2020	5	152	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Staging	Forklifts	1	7.00	89	0.20

Staging	Generator Sets	2	10.00	84	0.74
Staging	Graders	1	7.00	187	0.41
Staging	Off-Highway Trucks	6	5.00	402	0.38
Staging	Other Construction Equipment	8	5.00	172	0.42
Staging	Rubber Tired Dozers	0	8.00	247	0.40
Staging	Scrapers	1	7.00	80	0.38
Staging	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Staging	Trenchers	1	7.00	78	0.50
Water Deliveries	Aerial Lifts	0	1.00	63	0.31
Concrete Deliveries	Aerial Lifts	0	1.00	63	0.31
Site Grading	Excavators	0	8.00	158	0.38
Site Grading	Graders	1	7.00	187	0.41
Site Grading	Off-Highway Trucks	3	2.00	402	0.38
Site Grading	Other Construction Equipment	3	2.00	172	0.42
Site Grading	Rollers	1	7.00	80	0.38
Site Grading	Rubber Tired Dozers	1	7.00	247	0.40
Site Grading	Scrapers	1	7.00	367	0.48
Site Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Access Road Construction	Graders	1	8.00	187	0.41
Access Road Construction	Pavers	0	8.00	130	0.42
Access Road Construction	Paving Equipment	0	8.00	132	0.36
Access Road Construction	Rollers	1	7.00	80	0.38
Access Road Construction	Rubber Tired Dozers	1	7.00	247	0.40
Aggregate Delivery	Aerial Lifts	0	1.00	63	0.31
Collection Line Construction	Aerial Lifts	2	2.00	63	0.31
Collection Line Construction	Cranes	1	4.00	231	0.29
Collection Line Construction	Forklifts	1	7.00	89	0.20

Collection Line Construction	Generator Sets	1	1.00	84	0.74
Collection Line Construction	Off-Highway Trucks	2	2.00	402	0.38
Collection Line Construction	Other Construction Equipment	1	2.00	172	0.42
Collection Line Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Collection Line Construction	Welders	0	8.00	46	0.45
Substation Construction	Aerial Lifts	2	4.00	63	0.31
Substation Construction	Cranes	1	2.00	231	0.29
Substation Construction	Forklifts	1	4.00	89	0.20
Substation Construction	Generator Sets	0	8.00	84	0.74
Substation Construction	Off-Highway Trucks	1	2.00	402	0.38
Substation Construction	Other Construction Equipment	1	2.00	172	0.42
Substation Construction	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Substation Construction	Trenchers	4	2.00	78	0.50
Substation Construction	Welders	0	8.00	46	0.45
Solar Array Installation	Cranes	0	7.00	231	0.29
Solar Array Installation	Forklifts	5	4.00	89	0.20
Solar Array Installation	Generator Sets	4	4.00	84	0.74
Solar Array Installation	Off-Highway Tractors	7	4.00	124	0.44
Solar Array Installation	Off-Highway Trucks	4	2.00	402	0.38
Solar Array Installation	Other Construction Equipment	8	3.00	172	0.42
Solar Array Installation	Skid Steer Loaders	2	4.00	65	0.37
Solar Array Installation	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Solar Array Installation	Trenchers	4	1.00	78	0.50
Solar Array Installation	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Staging	21	25.00	0.00	72.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Water Deliveries	0	0.00	40.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Deliveries	0	0.00	0.00	50.00	16.80	6.60	15.00	LD_Mix	HDT_Mix	HHDT
Site Grading	11	50.00	0.00	72.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Access Road Construction	3	23.00	0.00	0.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Aggregate Delivery	0	0.00	0.00	3,506.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Collection Line Construction	11	23.00	0.00	472.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Substation Construction	14	23.00	0.00	0.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array Installation	35	23.00	0.00	2,288.00	17.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Staging - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3914	0.0000	1.3914	0.1502	0.0000	0.1502			0.0000			0.0000
Off-Road	7.3762	73.5689	53.0532	0.1120		3.6027	3.6027		3.3538	3.3538		10,814.4241	10,814.4241	3.0816		10,891.4629
Total	**7.3762**	**73.5689**	**53.0532**	**0.1120**	**1.3914**	**3.6027**	**4.9941**	**0.1502**	**3.3538**	**3.5040**		**10,814.4241**	**10,814.4241**	**3.0816**		**10,891.4629**

3.2 Staging - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1143	3.9205	0.6376	0.0116	0.2523	0.0138	0.2660	0.0692	0.0132	0.0824		1,215.9423	1,215.9423	0.0389		1,216.9135
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1860	0.1125	1.4236	3.3300e-003	0.3326	2.1600e-003	0.3348	0.0882	1.9900e-003	0.0902		331.6545	331.6545	0.0102		331.9104
Total	**0.3003**	**4.0330**	**2.0612**	**0.0149**	**0.5849**	**0.0159**	**0.6008**	**0.1574**	**0.0152**	**0.1726**		**1,547.5968**	**1,547.5968**	**0.0491**		**1,548.8238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3914	0.0000	1.3914	0.1502	0.0000	0.1502			0.0000			0.0000
Off-Road	1.7956	38.1865	70.0851	0.1120		0.1784	0.1784		0.1784	0.1784	0.0000	10,814.4241	10,814.4241	3.0816		10,891.4629
Total	**1.7956**	**38.1865**	**70.0851**	**0.1120**	**1.3914**	**0.1784**	**1.5698**	**0.1502**	**0.1784**	**0.3286**	**0.0000**	**10,814.4241**	**10,814.4241**	**3.0816**		**10,891.4629**

3.2 Staging - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1143	3.9205	0.6376	0.0116	0.2523	0.0138	0.2660	0.0692	0.0132	0.0824		1,215.9423	1,215.9423	0.0389		1,216.9135
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1860	0.1125	1.4236	3.3300e-003	0.3326	2.1600e-003	0.3348	0.0882	1.9900e-003	0.0902		331.6545	331.6545	0.0102		331.9104
Total	**0.3003**	**4.0330**	**2.0612**	**0.0149**	**0.5849**	**0.0159**	**0.6008**	**0.1574**	**0.0152**	**0.1726**		**1,547.5968**	**1,547.5968**	**0.0491**		**1,548.8238**

3.3 Site Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6612	0.0000	6.6612	3.0467	0.0000	3.0467			0.0000			0.0000
Off-Road	3.4630	38.0680	21.3297	0.0461		1.6763	1.6763		1.5422	1.5422		4,463.4919	4,463.4919	1.4436		4,499.5815
Total	**3.4630**	**38.0680**	**21.3297**	**0.0461**	**6.6612**	**1.6763**	**8.3375**	**3.0467**	**1.5422**	**4.5889**		**4,463.4919**	**4,463.4919**	**1.4436**		**4,499.5815**

3.3 Site Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.7900e-003	0.3016	0.0491	8.9000e-004	0.0194	1.0600e-003	0.0205	5.3200e-003	1.0100e-003	6.3400e-003		93.5340	93.5340	2.9900e-003		93.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3721	0.2250	2.8473	6.6700e-003	0.6652	4.3200e-003	0.6696	0.1764	3.9800e-003	0.1804		663.3090	663.3090	0.0205		663.8208
Total	**0.3809**	**0.5266**	**2.8963**	**7.5600e-003**	**0.6846**	**5.3800e-003**	**0.6900**	**0.1817**	**4.9900e-003**	**0.1867**		**756.8430**	**756.8430**	**0.0235**		**757.4295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6612	0.0000	6.6612	3.0467	0.0000	3.0467			0.0000			0.0000
Off-Road	0.7656	13.8505	26.6833	0.0461		0.0754	0.0754		0.0754	0.0754	0.0000	4,463.4919	4,463.4919	1.4436		4,499.5815
Total	**0.7656**	**13.8505**	**26.6833**	**0.0461**	**6.6612**	**0.0754**	**6.7366**	**3.0467**	**0.0754**	**3.1222**	**0.0000**	**4,463.4919**	**4,463.4919**	**1.4436**		**4,499.5815**

3.3 Site Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.7900e-003	0.3016	0.0491	8.9000e-004	0.0194	1.0600e-003	0.0205	5.3200e-003	1.0100e-003	6.3400e-003		93.5340	93.5340	2.9900e-003		93.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3721	0.2250	2.8473	6.6700e-003	0.6652	4.3200e-003	0.6696	0.1764	3.9800e-003	0.1804		663.3090	663.3090	0.0205		663.8208
Total	**0.3809**	**0.5266**	**2.8963**	**7.5600e-003**	**0.6846**	**5.3800e-003**	**0.6900**	**0.1817**	**4.9900e-003**	**0.1867**		**756.8430**	**756.8430**	**0.0235**		**757.4295**

3.4 Water Deliveries - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Water Deliveries - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1470	4.6124	0.8606	0.0106	0.2452	0.0249	0.2701	0.0706	0.0238	0.0944		1,110.6761	1,110.6761	0.0514		1,111.9617
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1470**	**4.6124**	**0.8606**	**0.0106**	**0.2452**	**0.0249**	**0.2701**	**0.0706**	**0.0238**	**0.0944**		**1,110.6761**	**1,110.6761**	**0.0514**		**1,111.9617**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Water Deliveries - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1470	4.6124	0.8606	0.0106	0.2452	0.0249	0.2701	0.0706	0.0238	0.0944		1,110.6761	1,110.6761	0.0514		1,111.9617
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1470**	**4.6124**	**0.8606**	**0.0106**	**0.2452**	**0.0249**	**0.2701**	**0.0706**	**0.0238**	**0.0944**		**1,110.6761**	**1,110.6761**	**0.0514**		**1,111.9617**

3.5 Concrete Deliveries - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Concrete Deliveries - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5300e-003	0.0547	8.5000e-003	1.5000e-004	3.1300e-003	1.7000e-004	3.3000e-003	8.6000e-004	1.7000e-004	1.0300e-003		15.8904	15.8904	6.0000e-004		15.9054
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5300e-003**	**0.0547**	**8.5000e-003**	**1.5000e-004**	**3.1300e-003**	**1.7000e-004**	**3.3000e-003**	**8.6000e-004**	**1.7000e-004**	**1.0300e-003**		**15.8904**	**15.8904**	**6.0000e-004**		**15.9054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Concrete Deliveries - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5300e-003	0.0547	8.5000e-003	1.5000e-004	3.1300e-003	1.7000e-004	3.3000e-003	8.6000e-004	1.7000e-004	1.0300e-003		15.8904	15.8904	6.0000e-004		15.9054
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5300e-003**	**0.0547**	**8.5000e-003**	**1.5000e-004**	**3.1300e-003**	**1.7000e-004**	**3.3000e-003**	**8.6000e-004**	**1.7000e-004**	**1.0300e-003**		**15.8904**	**15.8904**	**6.0000e-004**		**15.9054**

3.6 Aggregate Delivery - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Aggregate Delivery - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4280	14.6850	2.3883	0.0434	0.9449	0.0516	0.9965	0.2592	0.0494	0.3085		4,554.5873	4,554.5873	0.1455		4,558.2250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4280**	**14.6850**	**2.3883**	**0.0434**	**0.9449**	**0.0516**	**0.9965**	**0.2592**	**0.0494**	**0.3085**		**4,554.5873**	**4,554.5873**	**0.1455**		**4,558.2250**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Aggregate Delivery - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4280	14.6850	2.3883	0.0434	0.9449	0.0516	0.9965	0.2592	0.0494	0.3085		4,554.5873	4,554.5873	0.1455		4,558.2250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4280**	**14.6850**	**2.3883**	**0.0434**	**0.9449**	**0.0516**	**0.9965**	**0.2592**	**0.0494**	**0.3085**		**4,554.5873**	**4,554.5873**	**0.1455**		**4,558.2250**

3.7 Access Road Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6025	18.0623	7.0863	0.0164		0.8039	0.8039		0.7396	0.7396		1,588.9515	1,588.9515	0.5139		1,601.7990
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6025**	**18.0623**	**7.0863**	**0.0164**		**0.8039**	**0.8039**		**0.7396**	**0.7396**		**1,588.9515**	**1,588.9515**	**0.5139**		**1,601.7990**

3.7 Access Road Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.1712**	**0.1035**	**1.3097**	**3.0700e-003**	**0.3060**	**1.9900e-003**	**0.3080**	**0.0812**	**1.8300e-003**	**0.0830**		**305.1221**	**305.1221**	**9.4200e-003**		**305.3576**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2818	4.7152	9.2159	0.0164		0.0268	0.0268		0.0268	0.0268	0.0000	1,588.9515	1,588.9515	0.5139		1,601.7990
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2818**	**4.7152**	**9.2159**	**0.0164**		**0.0268**	**0.0268**		**0.0268**	**0.0268**	**0.0000**	**1,588.9515**	**1,588.9515**	**0.5139**		**1,601.7990**

3.7 Access Road Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.1712**	**0.1035**	**1.3097**	**3.0700e-003**	**0.3060**	**1.9900e-003**	**0.3080**	**0.0812**	**1.8300e-003**	**0.0830**		**305.1221**	**305.1221**	**9.4200e-003**		**305.3576**

3.8 Collection Line Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4274	14.5849	12.0205	0.0222		0.7611	0.7611		0.7022	0.7022		2,146.6404	2,146.6404	0.6735		2,163.4770
Total	**1.4274**	**14.5849**	**12.0205**	**0.0222**		**0.7611**	**0.7611**		**0.7022**	**0.7022**		**2,146.6404**	**2,146.6404**	**0.6735**		**2,163.4770**

3.8 Collection Line Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0797	2.7341	0.4447	8.0800e-003	0.1759	9.6100e-003	0.1855	0.0483	9.1900e-003	0.0574		847.9976	847.9976	0.0271		848.6749
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.2508**	**2.8376**	**1.7544**	**0.0112**	**0.4819**	**0.0116**	**0.4935**	**0.1294**	**0.0110**	**0.1404**		**1,153.1197**	**1,153.1197**	**0.0365**		**1,154.0324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4229	8.0935	14.5256	0.0222		0.0539	0.0539		0.0539	0.0539	0.0000	2,146.6404	2,146.6404	0.6735		2,163.4770
Total	**0.4229**	**8.0935**	**14.5256**	**0.0222**		**0.0539**	**0.0539**		**0.0539**	**0.0539**	**0.0000**	**2,146.6404**	**2,146.6404**	**0.6735**		**2,163.4770**

3.8 Collection Line Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0797	2.7341	0.4447	8.0800e-003	0.1759	9.6100e-003	0.1855	0.0483	9.1900e-003	0.0574		847.9976	847.9976	0.0271		848.6749
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.2508**	**2.8376**	**1.7544**	**0.0112**	**0.4819**	**0.0116**	**0.4935**	**0.1294**	**0.0110**	**0.1404**		**1,153.1197**	**1,153.1197**	**0.0365**		**1,154.0324**

3.9 Substation Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3530	13.5376	11.3920	0.0183		0.7954	0.7954		0.7318	0.7318		1,774.0383	1,774.0383	0.5738		1,788.3823
Total	**1.3530**	**13.5376**	**11.3920**	**0.0183**		**0.7954**	**0.7954**		**0.7318**	**0.7318**		**1,774.0383**	**1,774.0383**	**0.5738**		**1,788.3823**

3.9 Substation Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.1712**	**0.1035**	**1.3097**	**3.0700e-003**	**0.3060**	**1.9900e-003**	**0.3080**	**0.0812**	**1.8300e-003**	**0.0830**		**305.1221**	**305.1221**	**9.4200e-003**		**305.3576**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3702	7.3956	12.7822	0.0183		0.0658	0.0658		0.0658	0.0658	0.0000	1,774.0383	1,774.0383	0.5738		1,788.3823
Total	**0.3702**	**7.3956**	**12.7822**	**0.0183**		**0.0658**	**0.0658**		**0.0658**	**0.0658**	**0.0000**	**1,774.0383**	**1,774.0383**	**0.5738**		**1,788.3823**

3.9 Substation Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.1712**	**0.1035**	**1.3097**	**3.0700e-003**	**0.3060**	**1.9900e-003**	**0.3080**	**0.0812**	**1.8300e-003**	**0.0830**		**305.1221**	**305.1221**	**9.4200e-003**		**305.3576**

3.10 Solar Array Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5320	45.1993	40.3596	0.0693		2.3709	2.3709		2.2126	2.2126		6,685.1157	6,685.1157	1.8293		6,730.8472
Total	**4.5320**	**45.1993**	**40.3596**	**0.0693**		**2.3709**	**2.3709**		**2.2126**	**2.2126**		**6,685.1157**	**6,685.1157**	**1.8293**		**6,730.8472**

3.10 Solar Array Installation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1194	4.0982	0.6665	0.0121	0.2637	0.0144	0.2781	0.0723	0.0138	0.0861		1,271.0508	1,271.0508	0.0406		1,272.0660
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.2906**	**4.2017**	**1.9763**	**0.0152**	**0.5697**	**0.0164**	**0.5861**	**0.1535**	**0.0156**	**0.1691**		**1,576.1729**	**1,576.1729**	**0.0500**		**1,577.4235**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0719	27.3739	47.7602	0.0693		0.1538	0.1538		0.1538	0.1538	0.0000	6,685.1157	6,685.1157	1.8293		6,730.8472
Total	**1.0719**	**27.3739**	**47.7602**	**0.0693**		**0.1538**	**0.1538**		**0.1538**	**0.1538**	**0.0000**	**6,685.1157**	**6,685.1157**	**1.8293**		**6,730.8472**

3.10 Solar Array Installation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1194	4.0982	0.6665	0.0121	0.2637	0.0144	0.2781	0.0723	0.0138	0.0861		1,271.0508	1,271.0508	0.0406		1,272.0660
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1712	0.1035	1.3097	3.0700e-003	0.3060	1.9900e-003	0.3080	0.0812	1.8300e-003	0.0830		305.1221	305.1221	9.4200e-003		305.3576
Total	**0.2906**	**4.2017**	**1.9763**	**0.0152**	**0.5697**	**0.0164**	**0.5861**	**0.1535**	**0.0156**	**0.1691**		**1,576.1729**	**1,576.1729**	**0.0500**		**1,577.4235**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0205	0.0542	0.3278	9.0000e-004	0.0822	7.0000e-004	0.0829	0.0219	6.5000e-004	0.0226		90.4573	90.4573	2.7000e-003		90.5248
Unmitigated	0.0205	0.0542	0.3278	9.0000e-004	0.0822	7.0000e-004	0.0829	0.0219	6.5000e-004	0.0226		90.4573	90.4573	2.7000e-003		90.5248

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	6.12	0.00	0.00	27,862	27,862
Total	6.12	0.00	0.00	27,862	27,862

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	17.50	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.516727	0.116777	0.172440	0.141085	0.022326	0.005434	0.020884	0.000000	0.000000	0.000000	0.004327	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882
Unmitigated	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882
Total	**3.6200e-003**	**3.6000e-004**	**0.0387**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0827**	**0.0827**	**2.2000e-004**		**0.0882**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6200e-003	3.6000e-004	0.0387	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0827	0.0827	2.2000e-004		0.0882
Total	**3.6200e-003**	**3.6000e-004**	**0.0387**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0827**	**0.0827**	**2.2000e-004**		**0.0882**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Name | **Prioritization Calculator**

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in grey areas.		
Author or updater	Stan Armstrong	*Last Update*	August 30, 2018
Facility: **ID#:** **Project #:** **Unit and Process#**	Deer Creek Solar Project - Unmitigated		

Operating Hours hr/yr		2,080.00			
Receptor Proximity and Proximity Factors		**Cancer Score**	**Chronic Score**	**Acute Score**	**Max Score**
0< R<100	**1.000**	8.04E+02	5.02E+00	0.00E+00	8.04E+02
100≤R<250	**0.250**	2.01E+02	1.26E+00	0.00E+00	2.01E+02
250≤R<500	**0.040**	3.22E+01	2.01E-01	0.00E+00	3.22E+01
500≤R<1000	**0.011**	8.85E+00	5.52E-02	0.00E+00	8.85E+00
1000≤R<1500	**0.003**	2.41E+00	1.51E-02	0.00E+00	2.41E+00
1500≤R<2000	**0.002**	1.61E+00	1.00E-02	0.00E+00	1.61E+00
2000<R	**0.001**	8.04E-01	5.02E-03	0.00E+00	8.04E-01

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

0

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	**CAS#**	**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**	**Average Hourly (lbs/hr)**	**Cancer**	**Chronic**	**Acute**
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	3.48E+02	6.07E-01	1.67E-01	8.04E+02	5.02E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	**8.04E+02**	**5.02E+00**	**0.00E+00**

Name | **Prioritization Calculator**

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in grey areas.		
Author or updater	Stan Armstrong	*Last Update*	August 30, 2018
Facility: **ID#:** **Project #:** **Unit and Process#**	Deer Creek Solar Project - Mitigated		

Operating Hours hr/yr		2,080.00			
Receptor Proximity and Proximity Factors		**Cancer Score**	**Chronic Score**	**Acute Score**	**Max Score**
0< R<100	**1.000**	7.30E+01	4.56E-01	0.00E+00	7.30E+01
100≤R<250	**0.250**	1.82E+01	1.14E-01	0.00E+00	1.82E+01
250≤R<500	**0.040**	2.92E+00	1.82E-02	0.00E+00	2.92E+00
500≤R<1000	**0.011**	8.03E-01	5.01E-03	0.00E+00	8.03E-01
1000≤R<1500	**0.003**	2.19E-01	1.37E-03	0.00E+00	2.19E-01
1500≤R<2000	**0.002**	1.46E-01	9.12E-04	0.00E+00	1.46E-01
2000<R	**0.001**	7.30E-02	4.56E-04	0.00E+00	7.30E-02

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

0

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	**CAS#**	**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**	**Average Hourly (lbs/hr)**	**Cancer**	**Chronic**	**Acute**
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	3.16E+01	4.54E-02	1.52E-02	7.30E+01	4.56E-01	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
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				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	**7.30E+01**	**4.56E-01**	**0.00E+00**

Displaced Greenhouse Gas Emissions

Parameter	Value	Source/Notes
Deer Creek Solar generational capacity, MW	70	
Total hours per year	8,760	
Operational time, %	23.3%	Annual average solar radiation hours per day per year (5.6hrs)
Operational hours per year	2,044	
Operational life of facilities, years	35	

Parameter	Value	Source/Notes
Coal heat rate, Btu/kWh	10,080	https://www.eia.gov/tools/faqs/faq.cfm?id=667&t=3
Natural gas heat rate, Btu/kWh	10,408	https://www.eia.gov/tools/faqs/faq.cfm?id=667&t=3
Assumed heat rate, Btu/kWh	10,080	Minimum value of coal and natural gas heat rates (conservative)
Coal heat content, MMBtu/ton	20.16	https://www.eia.gov/tools/faqs/faq.cfm?id=72&t=2

California Power Mix

Fuel	Percent	Source/Notes
Natural gas	44%	http://www.energy.ca.gov/almanac/electricity_data/system_power/2014_total_system_power.html
Coal	6%	http://www.energy.ca.gov/almanac/electricity_data/system_power/2014_total_system_power.html
Other	50%	http://www.energy.ca.gov/almanac/electricity_data/system_power/2014_total_system_power.html

Emission Factors	CO2	CH4	N2O	Source/Notes
Natural gas, lb/MMBtu	110	N/A	N/A	AP-42 Section 3.1, Stationary Gas Turbines
Coal, lb/ton	6,040	0.04	0.03	AP-42 Section 1.1, Bituminous and Subbituminous Coal Combustion

Parameter	Deer Creek Solar
Power generated, MWh per year	143,080
Power generated, kWh per year	143,080,000
Fuel equivalent, Btu/year	1,442,246,400,000
Fuel equivalent, MMBtu/year	1,442,246.40
Natural gas equivalent, MMBtu/year	634,588.42
Coal equivalent, MMBtu/year	86,534.78
Coal displaced, tons/year	4,292.40
Equivalent CO2 produced from natural gas, tons/year	34,902.36
Equivalent CO2 produced from coal, tons/year	12,963.05
Equivalent CH4 produced from coal, tons/year	0.09
Equivalent N2O produced from coal, tons/year	0.06
Equivalent CO2e produced from natural gas and coal, tons/year	47,886.74
Equivalent CO2e produced from natural gas and coal, metric tons/year	43,442.14
Project construction emissions, metric tons/year	1,172.39
Project operational emissions, metric tons/year	9.83
Project deconstruction emissions, metric tons/year	1,172.39
Project emissions, metric tons/year	2,354.61
Displaced emissions, metric tons/year	41,087.53

Appendix B

Biological Resources Technical Report

ESA

DEER CREEK SOLAR I PROJECT
TULARE COUNTY, CALIFORNIA

Biological Resources Technical Report

Prepared for
Deer Creek Solar I LLC

December 2018

DEER CREEK SOLAR I PROJECT
TULARE COUNTY, CALIFORNIA

Biological Resources Technical Report

Prepared for
Deer Creek Solar I LLC

December 2018

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Deer Creek Solar I Project
Biological Resources Technical Report

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CHAPTER 1
Introduction

1.1 Overview of Findings

This report summarizes the findings of biological resource reconnaissance surveys performed for the Deer Creek Solar I (Project). The Project is proposed on a site in rural Tulare County one mile northwest of Terra Bella, adjacent to State Highway 65, and approximately 1,000 feet south of Deer Creek (**Figure 1**).

This report presents the findings of biological reconnaissance survey of the Project site that was performed by Environmental Science Associates (ESA) in October 2017. The survey objectives were to characterize habitat for special-status plant and wildlife species, identify potential federal or state-jurisdictional waters, identify sensitive natural communities, and generally characterize other sensitive biological resources that could potentially be impacted by site development.

The Project site is routinely tilled and cultivated for agricultural production and most surrounding lands are currently in agricultural production. As a consequence of agricultural activities, no sensitive or protected natural communities occur on the site. While federal and state listed species, as well as other special-status species, have been observed within 5 miles of the Project site, its status as disturbed agricultural lands severely limit its habitat potential for these species. However, our findings indicate the Project could have potential impacts on nesting birds and raptors and the Project should implement avoidance measures to minimize those impacts. San Joaquin kit fox and American badger avoidance measures should be implemented as well even though their potential occurrence on site is low. Standard burrowing owl protection measures should also be employed prior to construction to reduce impacts to this species.

1.2 Project Location and Description

Deer Creek Solar I

The Project site is located in Terra Bella, California, in a rural area of Tulare County (**Figure 1**). Road 224 borders the western side of the Project site, East Terra Bella Avenue the southern side, and Road 232 the eastern side. Deer Creek is located 500 to 2,000 feet to the north, depending on which section of the northern boundary the distance is calculated. Nearby communities include Porterville (7.0 miles north), Ducor (5.5 miles south), Terra Bella (1 mile southeast) and Pixley (12.5 miles west).

SOURCE: Open Street Map, 2017; ESA, 2017

Figure 1

Regional Location Map - Deer Creek Solar I Project

ESA

Surrounding land uses include farmland and rural residential. State Highway 99 is 12.5 miles to the west, State Highway 65 is across Road 232 from the site, and several rural residential properties in Terra Bella surround the site.

The proposed Project would cover approximately 378 acres and include the development of an up to 70 megawatt (MW) photovoltaic (PV) energy generation facility, battery energy storage system and associated infrastructure. The Project would consist of approximately 200,000 to 300,000 crystalline or thin film modules arranged in a grid pattern over the project. Power generated by the proposed project would be transferred to Southern California Edison's (SCE's) 66kV Poplar-Terra Bella line. The proposed solar facilities are intended to operate year-round, and would generate electricity during daylight hours.

The Project would transmit power to an SCE substation which would connect directly to SCE's 66kV Poplar-Terra Bella line. The power would then be sold to California investor-owned utilities, municipalities, or other purchasers in the furtherance of the goals of the California Renewable Portfolio Standard (RPS) and other similar renewable programs in the State.

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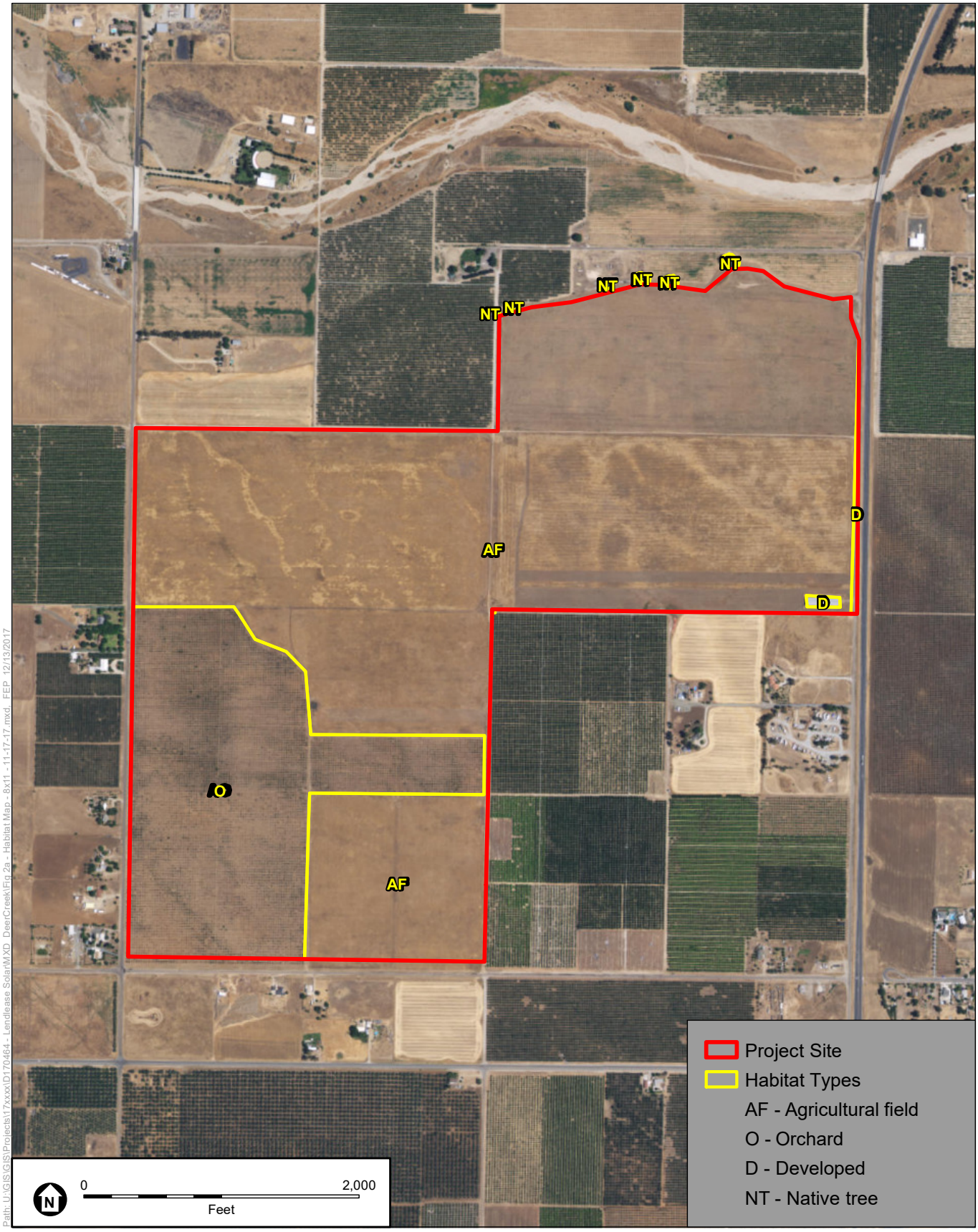
CHAPTER 2
Survey Methodology

The biological reconnaissance survey of the Project site was performed on October 16, 2017 between 1050 to 1415, by Environmental Science Associates (ESA) wildlife biologist Joseph Huang and ESA botanist LeChi Huynh. Weather conditions during the assessment were partly cloudy; wind 0 to 5 mph; and air temperature ranged from 73°F to 83°F. During the assessment, Mr. Huang and Ms. Huynh traversed across the Project site on foot. The study area considered during the biological survey is illustrated in **Figure 2**, which also shows the on-site habitats and land uses that were noted during the survey. Representative photographs of the site are provided in **Appendix A**.

Prior to the field assessment, ESA biologists reviewed the October 2017 California Natural Diversity Database (CNDDB) records for the Project site and a surrounding 5-mile radius for reported distribution of sensitive plant and wildlife species (CDFW, 2017). CNDDB records as of November, 2017 are shown in **Figure 3**. The National Wetland Inventory (NWI) mapping system was reviewed to identify whether any aquatic features have been identified in the study area.

A list of potential threatened and endangered species that could occur on or in the vicinity of the site was requested from the U.S. Fish and Wildlife Service (USFWS) and is appended to this report (USFWS, 2017a; **Appendix B**). A USFWS IPaC Resource Report was also generated for the analysis of the site (USFWS, 2017b; **Appendix C**). Eight federally listed species were identified in the Deer Creek Solar I USFWS list. A description of these species and an assessment of their potential to occur in the vicinity of the site is provided in Chapter 3, *Existing Conditions*, along with other special-status species that were identified regionally from other sources. Mr. Huang and Ms. Huynh, who performed the site review, are both familiar with the habitat requirements of the species identified in the USFWS species list (USFWS, 2017a). The site review additionally considered the potential presence of habitat for rare plants, western pond turtle (*Actinemys marmorata*), Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*), among other special-status species potentially occurring on the Project site.

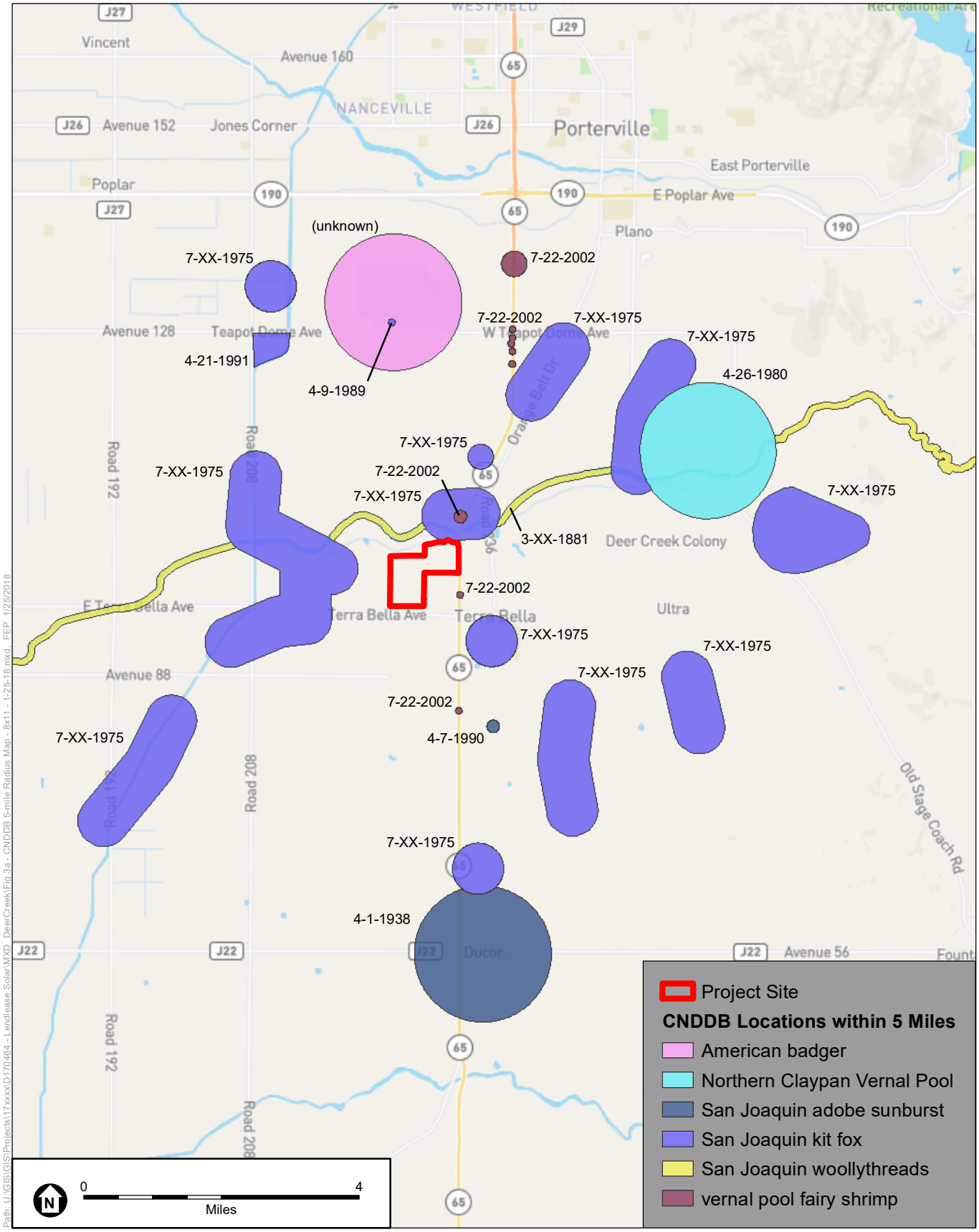


SOURCE: USDA, 2016; ESA, 2017

Figure 2

Habitat Map - Deer Creek Solar I Project

ESA



SOURCE: Open Street Map, 2017; CDFW, 2017; ESA, 2017

Figure 3

CNDDB 5-mile Radius Map - Deer Creek Solar I Project

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CHAPTER 3
Existing Conditions

3.1 Habitat Types

Upland Habitat. The Project site and surrounding areas support the following habitat types: cultivated or abandoned agricultural land, developed areas, bare soil, isolated irrigation ditches excavated in dry land, and aquatic habitat. It was verified during the biological reconnaissance survey that the sole land use at the Project site is agriculture. Agricultural land types observed during the October 16, 2017 biological reconnaissance survey included abandoned orchard and harvested field crops (**Table 1**; **Figure 2**). Areas that were observed during the survey were entirely disturbed and included bare tilled ground, dirt roads, unvegetated and vegetated agricultural ditches.

Some of the trees in the abandoned orchard on the site were apparently pulled out and stockpiled nearby. A few ruderal plant species were observed within the Project boundaries and along the Project boundary perimeter. Small mammal burrows ranging from 2 to 4 inches in diameter were observed at the Project site near the orchard, near a brush pile, and just outside the northern boundary (see photo points 2, 4b, 5, and 7). Some of the agricultural land was recently harvested while other sections were tilled in 2017. Representative photographs of the Project site and habitat features on the Project site are provided in Appendix A.

TABLE 1
HABITAT TYPES ON THE DEER CREEK SOLAR I PROJECT SITE

Habitat Type	Approximate Area
Agricultural field	282.91 acres
Abandoned orchard	84.68 acres
Developed	1.64 acres
Total	369.23 acres

Wetlands. The biological reconnaissance survey was intended to identify any potential wetland features occurring on the Project site. No potentially jurisdictional waters of the U.S. or waters of the State were observed on the interior of the site. All observed irrigation swales appeared to be recently excavated in upland areas and do not drain to off-site areas.

Most of the land located within and surrounding the Project site is subject to agricultural land uses with some rural residential properties adjacent to the Project site. Adjacent lands are either active agricultural fields or orchards. Most of these areas are planted as orchards or vineyards.

Several native trees, including valley oak (*Quercus lobata*) and black walnut (*Juglans californica*), were identified north of the Project site (see photo points 8 and 9). These trees may support nesting songbirds or raptors, including Swainson's hawk. No nests were observed during the field reconnaissance surveys.

3.2 Special-Status Plants and Wildlife

3.2.1 Special-Status Plants

Several species of special-status plants are reported by the CNDDB in the vicinity of the Project site (CDFW, 2017). However, based on the high level of regular site disturbance and lack of suitable habitat, none are expected on the site (**Figure 3**). Some of the rare plants that were identified locally (see **Table 2**) occur in association with a variety of habitats, including non-native grassland. Such habitat does not occur on the Project site and there is no potential for the presence of rare plant species on the site.

3.2.2 Special-Status Wildlife

Potential habitat features for special-status wildlife species were identified within or immediately adjacent to the Project site. Thus, there is a potential for impacts to some special-status wildlife species by the proposed Project. This technical report provides recommended measures to avoid potential impacts to these species. Designated critical habitat for federally listed species does not occur on or adjacent to the Project site (USFWS, 2017a and 2017b). An assessment of the potential for individual species to occur on the Project site is provided below (also see **Table 2**).

Fish

Delta smelt

One special-status fish species was identified in the U.S. Fish and Wildlife Service official species list: delta smelt (*Hypomesus transpacificus*) (USFWS, 2017a). Due to the absence of on-site aquatic habitat and distance to the Sacramento River, this species is not present on or near the site and no impacts would occur to this species.

TABLE 2
SPECIAL-STATUS SPECIES

Scientific Name Common Name	Listing Status USFWS/CDFW	General Habitat	Potential for Species Occurrence on or near the Project site
FEDERAL AND/OR STATE-LISTED SPECIES			
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	FE/-- Critical habitat	Vernal pools or other areas capable of ponding water seasonally	Absent. Some occurrences recorded in the CNDDB are within 5 miles of the Project site. However, suitable pool habitat is not present on the Project site. Species is considered absent.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/-- Critical habitat	This beetle is an obligate resident of the elderberry shrub (*Sambucus* sp.)	Absent. Elderberry shrubs are not present on the Project site; therefore this species is considered absent.
Fish			
Delta smelt *Hypomesus transpacificus*	FT/SE Critical habitat	Inhabits the freshwater-saltwater mixing zone of the San Francisco Bay/Delta estuary, except during its spawning season, when it migrates upstream to freshwater.	Absent. Riverine habitat that supports this species does not occur in the project area.
Amphibians			
California red-legged frog *Rana draytonii*	FT/CSC Critical habitat	Breed in stock ponds, pools, and slow-moving streams; may seasonally seek refuge or disperse into surrounding upland habitats.	Absent. No documented occurrences within 5 miles; upland and aquatic habitat that could support this species do not occur on or near the Project site. Although stock ponds and man-made basins are within 0.6 to 1.2 miles of the Project site, these are not considered aquatic habitat because it appears they are actively used for agricultural purposes.
Reptiles			
Giant garter snake *Thamnophis gigas*	FT/CT	Marshes, sloughs, canals, and irrigation ditches, especially near rice fields, and in slow-moving creeks.	Absent. Few agricultural ditches on the Project site, managed to convey agricultural flows and exclude vegetation. Deer Creek located 500 to 2,000 feet north of the Project site does not contain emergent vegetation and is fast flowing. No reported occurrences within 5 miles.
Blunt-nosed leopard lizard *Gambelia silus*	FE/CE	Found in semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas.	Absent. Suitable habitat is not present on or adjacent to the Project site. No CNDDB occurrences are documented within the 5-mile radius of the Project site.
Birds			
Swainson's hawk *Buteo swainsoni*	--/ST	Nests in large trees, often near water, open grasslands, or agricultural lands. Forages in grasslands and croplands with rodent populations.	Moderate. No suitable nesting trees occur on the site; trees found off-site may support nesting, especially the large valley oak trees immediately to the north of the Project site. A few portions of the site have signs of rodent activity which provides a limited prey base for the species.

TABLE 2
SPECIAL-STATUS SPECIES

Scientific Name Common Name	Listing Status USFWS/CDFW	General Habitat	Potential for Species Occurrence on or near the Project site
Mammals			
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	FE/SE	Undisturbed annual grasslands and scrublands with sandy, friable soils	Absent. The site consisted of predominantly tilled and maintained agricultural land. Although burrows are present, the site is absent of suitable undisturbed grassland and shrubland habitat with woody shrub species such as saltbush (*Atriplex* sp.).
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	Annual grasslands or grassy open areas with shrubs, loose-textured soils for burrows and prey base	Low. Small (3" to 4") ground squirrel burrows were limited to just a few locations on the site, with the majority of the site subject to large scale agricultural use that precludes kit fox use. Several CNDDB records, mostly from 1975, show occurrences within 5 miles of the Project site. One occurrence overlaps the Project site. Some signs of rodent activity also indicate a limited prey base for this species.
Plants			
California jewelflower *Caulanthus californicus*	FE/SE CRPR 1B.1	Occurs in several plant communities, including, non-native grassland, upper Sonoran subshrub scrub, and cismontane juniper woodland and scrub	Absent. This species is not reported within 5-miles of the site; no rare plants are expected on site due to lack of suitable habitat on agricultural land.
Springville clarkia *Clarkia springvillensis*	FT/SE CRPR 1B.2	Occurs in cut banks and openings in blue oak woodland; grows in decomposed granite loam in chaparral, woodland, and grassland areas	Absent. This species is not reported within 5-miles of the site; no rare plants are expected on site due to lack of suitable habitat on agricultural land.
Striped adobe-lily *Fritillaria striata*	--/ST CRPR 1B.1	Found in heavy clay adobe soils in oak grasslands	Absent. This species is not reported within 5-miles of the site; no rare plants are expected on site due to lack of suitable habitat on agricultural land.
San Joaquin woollythreads *Monolopia* (=*Lembertia*) *congdonii*	FE/-- CRPR 1B.2	Found in nonnative grassland, valley saltbush scrub, interior coast range saltbush scrub, and upper Sonoran subshrub scrub	Absent. Several occurrences within 5-miles of the site, but no rare plants are expected on site due to lack of suitable habitat on agricultural land.
San Joaquin adobe sunburst *Pseudobahia peirsonii*	FT/SE CRPR 1B.1	Occurs on grassy valley floors and rolling foothills in heavy clay soil within woodland and grassland areas	Absent. Several occurrences within 5-miles of the site, but no rare plants are expected on site due to lack of suitable habitat on agricultural land.
Keck's checkerbloom *Sidalcea keckii*	FE/-- CRPR 1B.1	Occurs on grassy slopes in blue oak woodland with serpentine-derived, clay soils	Absent. This species is not reported within 5-miles of the site; no rare plants are expected on site due to lack of suitable habitat on agricultural land.

TABLE 2
SPECIAL-STATUS SPECIES

Scientific Name Common Name	Listing Status USFWS/CDFW	General Habitat	Potential for Species Occurrence on or near the Project site
NON-LISTED SPECIAL-STATUS SPECIES			
Amphibians			
Western spadefoot *Spea hammondii*	--/CSC	Breeds in open water with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, among other habitats	Absent. Suitable breeding pools do not occur on or in the vicinity of the site. Nearby stock ponds or man-made basins are not considered suitable open water habitat for this species.
Reptiles			
Western pond turtle *Actinemys marmorata*	--/SC	Lakes, ponds, reservoirs, and slow-moving streams and rivers, primarily in foothills and lowlands	Unlikely. No aquatic habitat within the Project site. Deer Creek is located approximately 500 to 2000 feet of the northern boundary to the Project site. However, active orchard, vineyard, and rural residential land bisect the Project site and Deer Creek. It is unlikely the species would travel to the Project site from Deer Creek.
Birds			
Tricolored blackbird *Agelaius tricolor*	--/SC	Nests in freshwater marshes with dense stands of cattails or bulrushes, occasionally in willows, thistles, mustard, blackberry brambles, and dense shrubs and grains	Absent. Suitable nesting habitat in marshes with dense stands of emergent vegetation or blackberry brambles does not occur on or adjacent to the Project site.
Golden eagle *Aquila chrysaetos*	--/-- BGEPA	Nests in canyons and large trees in open habitats such as grasslands and savannahs	Absent. No suitable nesting trees occur in wide open habitat areas (i.e. rolling grasslands or savannahs) or canyons with cliffs occur near the site; nesting is not documented within 5-miles of the site.
Burrowing owl *Athene cunicularia*	--/CSC	Nests and forages in low-growing grasslands with burrowing mammals	Low (nesting). A limited amount of burrow habitat capable of supporting this species was observed within the Project site during the reconnaissance survey. No CNDDB occurrences were recorded within 5 miles of this site.
California horned lark *Eremophila alpestris actica*	--/CSC	Nests and forages in short-grass prairie, mountain meadow, coastal plain, fallow fields, and alkali flats	Low (nesting). Horned lark nesting is not expected due to the Project site being regularly tilled and maintained.
Loggerhead shrike *Lanius ludovicianus*	--/CSC	Scrub, open woodlands, and grasslands	Low. Orchard trees are within and adjacent to the Project site which this species may use to nest. However, the species prefers to nest in thorny substrates which provide protection from predators.
Mammals			
Pallid bat *Antrozous pallidus*	--/CSC	Open, dry habitats with rocky areas for roosting sites in deserts, grasslands, shrublands, woodlands, and forests	Absent. The Project site lacks rocky areas for roosting sites.

TABLE 2
SPECIAL-STATUS SPECIES

Scientific Name Common Name	Listing Status USFWS/CDFW	General Habitat	Potential for Species Occurrence on or near the Project site
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC	Needs open roosting areas hanging from building structures	Absent. The Project site lacks any appropriate open roosting sites in building structures.
Short-nosed kangaroo rat *Dipodomys nitratoides brevinasus*	--/CSC	Grassland and desert shrub communities with friable soils on flat or gently rolling terrain	Absent. The site is regularly tilled and maintained. Although burrows are present, the site is absent of suitable habitat, such as desert shrublands associated with saltbush plants (*Atriplex* sp.).
Western mastiff bat *Eumops perotis californicus*	--/CSC	Breeds in rugged, rocky canyons and forages in a variety of habitats	Absent. Large rock crevices and trees that provide roosts are absent from the Project site.
Tulare grasshopper mouse *Onychomys torridus tularensi*	--/CSC	Arid shrubland communities in hot, arid grassland and shrubland associations	Absent. The site consists of predominantly tilled and maintained agricultural land. Although burrows are present, the site is absent of suitable habitat, such as shrubland associated with saltbush (*Atriplex* sp.).
American badger *Taxidea taxus*	--/CSC	Dry, open grasslands	Low. No burrows identified during the reconnaissance survey indicated any evidence of badger activity. Badgers may occur regionally as a transient species and excavate through existing burrows to create a temporary den. the Project site has one occurrence recorded in the CNDDB within 5 miles.

POTENTIAL TO OCCUR DEFINITIONS

Present = Species was observed at the project site during surveys.

High = Species is known to occur in the project area or the species is known from the region surrounding the project area and would be expected to make significant use of the habitats in the project area because these habitats meet most of the species' life history needs and are of equal or greater quality, quantity, or distribution relative to similar habitats for the species occurring in the surrounding region.

Moderate = Species is known from the region surrounding the project area and could use habitats in the project area, but habitats in the project area meet only some of the species' life history needs, or the species would be expected to make more limited use of habitats in the project area because these habitats are more limited in quality, quantity, or distribution relative to similar habitats for the species in the surrounding region.

Low = Species is known from the surrounding region, and potentially suitable habitat exists in the project area, but this habitat is expected to meet few to none of the species' life history needs.

Unlikely = Species is known from the surrounding region, but suitable habitat does not exist in the project area. However, this species has a low chance of occurring at or near the project site as a transient.

Absent = Species is known from the surrounding region, but suitable habitat does not exist in the project area.

STATUS CODES:

Federal (U.S. Fish and Wildlife Service):
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government

State (California Department of Fish and Wildlife):
SE = Listed as Endangered by the State of California
ST = Listed as Threatened by the State of California
SC = California candidate for listing as endangered
CSC = California species of special concern

CNPS Rare Plant Ranking (California Native Plant Society):
1B = Plants rare, threatened, or endangered in California and elsewhere
1B.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
1B.2 = Moderately threatened in California (20-80% of occurrences threatened / high degree and immediacy of threat)

Invertebrates

Vernal pool fairy shrimp

This species was identified in the U.S. Fish and Wildlife Service official species list (USFWS, 2017a). The vernal pool fairy shrimp are translucent, slender crustaceans. They are generally less than 1 inch in length and swim on their backs. They eat algae and plankton by scraping and straining them from surfaces within the vernal pool or other temporary pond. These fairy shrimp occupy very short-lived pools that have few aquatic predators. No suitable temporary pond habitat is located within the Project site; thus, this species is considered absent from the site and no impacts would occur to this species.

Valley elderberry longhorn beetle

This species was identified in the U.S. Fish and Wildlife Service official species list (USFWS, 2017a). The valley elderberry longhorn beetle is solely dependent on its host plant, the elderberry shrub (*Sambucus* sp.), on which it feeds and lays eggs. Due to the absence of elderberry shrubs within the Project site, this species is considered absent from the site and no impacts would occur to this species.

Amphibians and Reptiles

California red-legged frog

The California red-legged frog (*Rana draytonii*) is largely an aquatic frog that occurs in ponds and slow-moving streams that provide permanent or semi-permanent water. This species opportunistically migrates into upland habitats during normal dispersal activities. The USFWS California red-legged frog survey protocol recommends that projects examine the presence of potential habitat up to 1.0 mile from a project boundary; even though dispersal distances may reach up to 2.0 miles (USFWS, 2005). This species may aestivate in upland environments when aquatic sites are unavailable or environmental conditions are inhospitable. If water is unavailable, they shelter from dehydration in a variety of refuges, including boulders, downed wood, moist leaf litter, and small mammal burrows.

Historically, the California red-legged frog occurred along the coast from the vicinity of Elk in southern Mendocino County, and inland from Redding, Shasta County, southward to northwestern Baja California, Mexico (Jennings and Hayes, 1994). The majority of California red-legged frog records in the project region occur in association with ponds that are either in the Sierran foothills or inner Coast Range.

This species was identified in the U.S. Fish and Wildlife Service official species list (USFWS, 2017a); however, no occurrences are reported within 5 miles of the Project site (**Figure 3**). Potential breeding habitat is not present on or adjacent to the site, and although a few stock ponds are located within 1.0 miles of the Project site, they too are not considered potential breeding habitat because they are actively used for agricultural purposes. Upland habitat is considered absent due to regular tilling and agricultural activities of areas on and adjacent to the Project site. No impacts are anticipated to this species.

Western spadefoot

Western spadefoot (*Spea hammondii*) occurs in open grassland, scrub, or mixed woodland and grassland where temporary pools form or where there are sandy, gravel washes or small streams that are often seasonal. The species lays its eggs in these temporary pools or seasonal streams in late winter and spring. When active above ground it is chiefly nocturnal. During the dry season it burrows in loose soil to depths as far down as about one meter (3.28 feet), where it avoids temperature extremes and desiccation. It may congregate at favorable burrowing sites, which can be well removed from breeding locality. The adult spadefoot diet consists of insects, worms, and other invertebrates, which usually appear after soaking rains (Stebbins, 2012).

There are no suitable temporary pools to provide breeding sites for this species in or within the vicinity of the Project site. Active agricultural cultivation of the site precludes the presence of suitable burrowing habitat for this species. Western spadefoot is considered absent from the Project site and the Project will not impact this species.

Western pond turtle

Western pond turtles (*Actinemys marmorata*) are commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates surrounded by aquatic vegetation. These watercourses usually are within woodlands, grasslands, and open forests, between sea level and 6,000-foot elevation. Turtles bask on logs or other objects when water temperatures are lower than air temperatures. Nests are located at upland sites, often up to 0.25-mile from an aquatic site (Jennings and Hayes, 1994; Stebbins, 2003; Zeiner et al., 1988–1990).

The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Elevation range extends from near sea level to 1,430 m (4,690 feet). Deer Creek is as close as approximately 500 feet away from the northern boundary of the Project site. However, there is active agriculture which bisects Deer Creek and the Project site, including orchard and vineyard, and also rural residential land. The surrounding agricultural land at the Project site does not provide the necessary habitat to support this species because it is actively maintained for agricultural purposes. Therefore, this species is unlikely to occur at the Project site, and no impacts are expected to this species.

Giant garter snake

The giant garter snake (*Thamnophis gigas*) is a large, mostly aquatic snake that inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, rice fields, managed marsh areas, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in California's Central Valley. During the active season, giant garter snakes require adequate water in order to provide food and cover, and emergent, herbaceous wetland vegetation such as cattails and bulrushes for escape cover and foraging habitat. Giant garter snake requires grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during the snake's dormant season. This species is typically absent from larger

rivers that lack such habitat and emergent vegetative cover, and from wetlands with sand, gravel, rock substrates, and from riparian woodlands.

The giant garter snake is active in the early spring through mid-fall (mid-March through October), breeds from March through April, bears live young from July to September, and is mostly dormant in the winter (Zeiner et al., 1988–1990). The giant garter snake feeds primarily on small fish and amphibians. Historically, the range of this snake was the San Joaquin Valley from the vicinity of Sacramento and Antioch southward to Buena Vista and the Tulare Lake Basin. The current distribution extends from near Chico in Butte County, to the vicinity of Burrel in Fresno County (CDFW, 2016).

Deer Creek was the closest waterway to the Project site, which was as close as approximately 500 feet away from the northern boundary of the eastern section of the site. However, this was not deemed aquatic habitat for this species because it did not have any emergent vegetation associated with it and it was a fast-flowing waterway, which the species tends to avoid. No suitable aquatic habitat was identified at the Project site. Giant garter snakes often hibernate in mammal burrows near aquatic habitat for its winter refugia during the inactive season (Halstead, 2015). The CNDDB does not identify any occurrences of giant garter snake within five miles of the Project site (**Figure 3**) (CDFW, 2017). Due to the lack of suitable aquatic habitat on or near the Project site and the great distance to known garter snake populations, this species is considered absent from the Project site and no impacts are anticipated.

Blunt-nosed leopard lizard

The blunt-nosed leopard lizard (*Gambelia sila*) occurs in the San Joaquin Valley at elevations from the Central Valley floor up to 2,600 feet in the surrounding foothills (Germano and Williams, 1992; Stebbins, 2003; USFWS, 1985). This species' habitat includes alkali sink scrub, saltbush scrub, *Ephedra* scrub, and sparse grasslands, often in areas with alkaline or saline soils (Stebbins, 2003), though washes and barren areas can also be important in areas with marginal habitat. Blunt-nosed leopard lizards inhabit small mammal burrows of species such as California ground squirrels and kangaroo rats (*Dipodomys* spp.). These burrows are used as refuge to hide from predators. However, in areas of low mammal burrow density they can construct their own shallow burrows (USFWS, 1998).

The Project site does not contain sandy wash or alkali scrub habitats. It consists of agricultural land which is tilled and maintained regularly. Similar inappropriate habitat conditions were identified with very few burrows observed in small pockets near the abandoned orchard trees, within a brush pile, and beyond the northern boundary of the Project site (see Appendix A, photo points 1a through 12)[1]. No other burrows were identified in the open agricultural field, which does not allow for roaming and hunting because no burrows are readily available for use to hide from predators.

[1] Note that all photo points referenced in this report are provided in Appendix A.

This species is considered absent from the site on account of the regular site management or agricultural practices, such as site disking, the small number of burrows observed, and lack of suitable habitat on and adjacent to the Project site. No impacts to this species are anticipated.

Raptors and Nesting Birds

Special consideration was given during the biological reconnaissance survey to the potential presence of nesting and foraging habitat for tricolored blackbird (*Agelaius tricolor*) and raptors including burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), golden eagle (*Aquila chrysaetos*), on and near the Project site. For burrowing owl, an inspection was performed of all cleared areas, road shoulders, and areas of low-growing grass to identify potential nest burrows and host species. These species are discussed individually below.

Western burrowing owl

The western burrowing owl (*Athene cunicularia*) is a relatively small, semi-colonial owl that resides in dry, open grasslands and desert areas. They occupy burrows for both breeding and roosting. They use burrows excavated by ground squirrels and other small mammals and will use human-made burrows and cavities. Where the number and availability of natural burrows is limited, owls may occupy human-made burrows such as drainage culverts, cavities under piles of rubble, discarded pipe, and other tunnel-like structures (Zeiner et al., 1988–1990). Burrowing owls hunt from perches and are opportunistic feeders. They consume arthropods, small mammals (e.g., meadow voles), birds, amphibians, and reptiles. Insects are often taken during the day, while small mammals are taken at night (Zeiner et al., 1988–1990).

The survey did not identify any burrowing owls on the site; however, signs of small mammal activity was observed at the site, including small mammal burrows located near the orchard and brush pile and along the eastern perimeter. California ground squirrels, a host species, were observed just outside the northern boundary site. Although no burrowing owls were observed at the Project site, there is a low potential for burrowing owls to move into the Project site because a limited number of small mammal burrows, which may provide potential burrow nest locations, are present. A preconstruction survey at the Project site is recommended to avoid any impacts to this species by proposed activities.

Swainson's hawk

The Swainson's hawk (*Buteo swainsoni*) is a medium-sized raptor with white leading edges of wings, a dark bib, and lightly banded tail. This species has various color morphs that can make it difficult to identify. It breeds in stands with few trees in juniper-sage flats, riparian areas, or oak savannah adjacent to suitable foraging habitat such as grasslands, alfalfa or grainfields with rodent populations. Threats to Swainson's hawk include development, resulting in the loss of foraging and nesting habitat. Swainson's hawk is listed as threatened by the state of California and is not federally listed.

Due to active cultivation that limits small mammal populations, cropland within the Project site is considered to provide marginally suitable foraging habitat for this species. The presence of small

mammal burrows near the orchard, brush pile, and eastern perimeter and rodent scat in the fields only at a few portions of the site indicate there is an available prey, but it is limited to very small pockets of the site. Immediately adjacent to the northern boundary of the Project site there are several large trees that may support Swainson's hawk nests. There are also large trees in the general vicinity (within a 1/4 mile) of the Project site. However, no nests have been documented at these locations and none were observed during the reconnaissance survey. No Swainson's hawks were observed during the site survey and the CNDDB did not identify any occurrences within five miles of the Project site (**Figure 3**) (CDFW, 2017). This species is present in the regional area surrounding the Project site, and could occasionally use the site for foraging because there is a prey base of small mammals on and adjacent to the site.

It is recommended a preconstruction survey for nesting Swainson's hawk be completed at the Project site to identify any active nests if construction begins during the nesting season from February 15 to September 15. If an active nest is observed during the preconstruction survey, then potential impacts to a nesting pair of Swainson's hawks may occur as a result of construction.

Golden eagle

Golden eagles (*Aquila chrysaetos*) nest in open areas on cliffs and in large trees, often constructing multiple nests in one breeding territory (Zeiner et al., 1988–1990). They prefer open habitats such as rolling grasslands, deserts, savannahs, and early successional forest and shrub habitats, with cliffs or large trees for nesting and cover (Zeiner et al., 1988–1990). No golden eagle breeding sites are documented within 5 miles of the Project site (**Figure 3**) (CDFW, 2017) and nesting habitat for this species does not occur on-site because there are no nearby cliffs and the trees located just north of the Project site are not in an open habitat area such as rolling grassland and savannah. These trees are situated in a cluttered area full of agricultural lands. Golden eagles are not known to nest near orchards, vineyards, and other agricultural lands. The golden eagle is not expected on the Project site and no impacts are anticipated to this species.

Tricolored blackbird (nesting colony)

Tricolored blackbirds (*Agelaius tricolor*) are a colonial species that nest in dense vegetation in and around freshwater wetlands. When nesting, tricolored blackbirds generally require freshwater wetland areas large enough to support colonies of 50 pairs or more. They prefer freshwater emergent wetlands with tall, dense cattails or tules for nesting, but will also nest in thickets of willow, blackberry, wild rose, or tall herbs. During the nonbreeding season, flocks are highly mobile and forage in grasslands, croplands, and wetlands (Zeiner et al., 1988–1990).

Tricolored blackbirds are locally common in portions of the Central Valley and coastal areas south of Sonoma County. No suitable tricolored blackbird nesting sites in wetland habitat areas with emergent vegetation (such as tule and cattails) were identified on or adjacent to the Project site during the biological reconnaissance survey. Deer Creek just north of the Project site did not contain any emergent vegetation nor any thickets of willow or blackberry brambles where the species could nest. Although tricolored blackbirds can forage in croplands eating insects such as grasshoppers, the Project site is not near any freshwater wetland habitats with suitable vegetation

where a colony may congregate and nest. Thus, this species is not expected to breed or forage on the site and would not be impacted by the Project.

California horned lark

California horned larks (*Eremophila alpestris*) are brown songbirds that form large flocks for foraging and roosting. They build grass-lined nests directly on the ground, in dry, open habitats with sparse vegetation. Range-wide, California horned larks nest in level or gently sloping shortgrass prairie, montane meadows, barren fields, opens coastal plains, fallow grain fields, row crops, and alkali flats. No nesting occurrences are reported within 5 miles of the Project site (CDFW, 2017) (note that nesting occurrences are generally underreported for this relatively widespread species). Due to ongoing farming activities at the Project site, this species is not expected to nest within the Project site.

Loggerhead shrike

Loggerhead shrikes (*Lanius ludovicianus*), a California Species of Special Concern, are a semipermanent resident species that occurs in abundance in the Central Valley and Central Coast where shrub habitats and open woodlands are available. Shrikes generally forage on the fringes of open habitats where suitable hunting perches are available. This species typically hunts from dead trees, tall shrubs, utility wires and fences, impaling their prey on sharp twigs, thorns, or barbed wire.

The breeding distribution of this species is not well characterized by the CNDDB. Loggerhead shrike populations are readily encountered when appropriate nesting habitat is available. Preferred nesting substrates consist of trees and shrubs with thorns that can protect the nest from predators. The Project site and adjacent orchard lands support trees that could potentially provide nesting habitat. Power lines are available perches on the site. This species may occur on or near the Project site and mitigation measures for nesting birds will be recommended to minimize the impacts by the Project.

Other nesting birds

Potential nesting habitat for several types of birds (ground nesters and grass nesters) is generally limited on the Project site due to active cultivation and the absence of vegetation on the site. Nesting habitat for tree nesters is present in the abandoned orchard at the Project site and in the adjacent orchard lands. Common bird species observed or heard during the surveys include white crowned sparrow (*Zonotrichia leucophrys*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), red-tailed hawk (*Buteo jamaicensis*), California scrub-jay (*Aphelocoma californica*), western meadowlark (*Sturnella neglecta*), and killdeer (*Charadrius vociferus*). Foraging habitat is present on-site for these species. The reconnaissance survey also included a visual inspection of the Project site to identify potential bird nesting habitat on-site and within 500 feet. Several large eucalyptus (*Eucalyptus* sp.), valley oak (*Quercus lobata*), and black walnut (*Juglans californica*) trees were noted immediately to the north of the Project site and within 500 feet of the site that could support nesting raptors. No active bird nests or nesting activity was noted in the survey area because the

survey was completed outside the nesting season. To minimize potential impacts to nesting raptors or other nesting birds, and for compliance with the Migratory Bird Treaty Act and CDFW Code (§3503 and 3503.5), a routine nesting bird and raptor survey should be performed in advance of any proposed disturbance and/or construction activities to ensure that no active nests occur on or adjacent to the Project site at the time of construction.

Mammals

San Joaquin kit fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a small fox with large, conspicuous ears, relatively long legs, and a slender build. Historically, this kit fox was widely distributed throughout grassland, scrubland, and wetland communities in the San Joaquin Valley and adjacent low foothills, but agricultural, urban, and industrial development in the Valley, including oil and gas development, has led to extensive and continuing loss of native habitat, the primary threat to kit foxes.

Several kit fox occurrences are reported within 5 miles of the Project site, but the most recent occurrence was recorded in 1991 (**Figure 3**) (CDFW, 2017). No kit fox individuals or evidence of occupation by kit foxes were observed during the survey. In addition, as shown in site photos in Appendix A, the Project site is subject to large scale agricultural production and managed in a manner that very few ground squirrels or other prey species are present on site with no observed burrows suitable for kit fox habitation.

Although the agricultural lands on the Project site is regularly tilled and maintained, a handful of small mammal burrows were identified A few burrows were observed near the abandoned orchard trees and brush pile and along the perimeter of the site that showed limited signs of small mammal activity in the form of rodent scat, indicating the presence of a limited prey base (see Appendix A, photo points 1a through 12). No other burrows were identified within the mostly tilled site. A ground squirrel burrow complex was observed just outside the perimeter of the Project site as well. Most of the burrows observed were less than 3 inches in diameter (i.e., not suitable for kit fox) and few had entrances that were approximately 4 inches in diameter. There is a low potential that individual San Joaquin kit foxes could use one of the few burrows identified on the Project site as a temporary den location; however, this appears unlikely based on disturbance from overall site management, lack of cover, and the scarcity of burrows on the site.

Kit foxes may potentially occur on the Project site on a transient basis; however, little cover is present on the site for this species. Recommendations are provided to avoid any potential impacts by the proposed Project to this species.

American badger

In California, American badgers (*Taxidea taxus*) occupy a diversity of habitats. Grasslands, savannas, and mountain meadows near the timberline are preferred, though they can be found in deserts as well. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground.

In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County (Williams, 1986). A badger sighting is recorded in the CNDDB approximately 3.5 miles north of the Project site (**Figure 3**). The general absence of larger mammal burrows or signs of badger excavation in the burrows observed on the Project site during the surveys indicates that badgers are absent from the site. There is a low potential for badgers to move into the site, possibly as transients that would not reside on-site. The mitigation measures recommended to avoid impacts to San Joaquin kit fox can combine to avoid impacts to the American badger as well.

Special-status rodents

The Tipton kangaroo rat, short-nosed kangaroo rat, and Tulare grasshopper mouse occur in undisturbed grassland, scrubland, or shrubland habitat, often associated with native saltbush plants (*Atriplex* sp.). These rodent species seek refuge in and depend on extensive burrow complexes. The Project site and surrounding lands are regularly tilled and maintained for agricultural purposes. The small mammal burrows observed at the site were limited in number and location. Due to the lack of undisturbed grassland and shrubland habitat and the lack of extensive small mammal burrow complexes, kangaroo rats and the Tulare grasshopper mouse are considered absent and no impacts are anticipated to these species.

Special-status bats

The Project site and surrounding lands do not support any structures or other features that provide roosts for special-status bats. The trees north of the Project site did not have any cavities where bats can enter to roost. No impacts are anticipated to these species.

3.3 Jurisdictional Waters and Sensitive Natural Communities

An agricultural ditch in the northern section of the Project site was identified during a query of the National Wetland Inventory. However, this feature is no longer present.

The Project area contains a few small, man-made, temporary irrigation swales. The Aquatic Resources Delineation prepared for the Project (ESA, 2018a) concluded that there are no wetlands and other waters of the U.S. within the Project site. No potential jurisdictional features were identified by the Aquatic Resources Delineation at the Project site. The Project site does not contain any features, such as lakes, rivers, or streams, that may be regulated by CDFW under Section 1600 et seq. of the California Fish and Game Code (ESA, 2018b). Since the on-site features are excavated on dry land, do not support hydric vegetation, are not connected to a stream system in the watershed, and retain irrigation water on-site, they would not be considered jurisdictional by the resource agencies. No other features were observed on-site that may be considered jurisdictional.

No sensitive natural communities occur on the Project site.

CHAPTER 4
Recommendations

As noted previously, the Project site is located in an active agricultural area that is surrounded by agricultural uses. The site is subject to frequent disturbances related to tilling and farming. The denuded barren and tilled areas, and agricultural lands do not support resident special-status plant or wildlife species, or waters of the U.S. or waters of the state. Additionally, no impacts to special-status plant species or sensitive natural communities were identified as a result of the proposed Project.

To avoid inadvertent impacts to nesting birds, the following protection measure is recommended for inclusion either as a project-proposed measure in the project description or as a mitigation measure:

> **Measure BIO-1. Nesting Bird Survey:** Ensure that active nests of raptors and other special-status nesting birds are not disturbed during construction.
>
> If active construction work (i.e., grading and site mobilization) is scheduled to take place outside of the avian nesting season (September 1 through January 31), no action would be required to protect nesting birds. If the start of construction activities occurs during the avian nesting season (February 1 through August 31), the following measures shall be implemented to avoid impacts on nesting raptors and other protected birds:
>
> - Within 30 days of construction, a qualified wildlife biologist shall conduct a preconstruction survey of all potential nesting habitat within a 1/4 mile of the Project site where access is available.
>
> - If active nests are found during the preconstruction survey, a no-disturbance buffer shall be created around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. Typical buffers include 1/4 mile for Swainson's hawk, 500 feet for raptors, and 250 feet for other nesting birds (e.g., passerine birds). The size of these buffer zones and types of construction activities restricted in these areas could be further modified during construction in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the Project site.
>
> - If the preconstruction survey indicates that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint determined to be unoccupied by nesting birds, or that are outside the no-disturbance buffer for active nests, could be removed.
>
> - If construction commences during the nonbreeding season and continues into the breeding season, most songbirds that choose to nest next to active construction sites

are generally considered to acclimate to construction activities, though nest abandonment may occur in some instances.

To avoid inadvertent impacts to special-status burrowing mammal species, such as the San Joaquin kit fox and American badger, the following protection measure is recommended for inclusion either as a project-proposed measure in the project description or as a mitigation measure:

Measure BIO-2: Ensure that active dens and burrows of special-status mammal species such as the San Joaquin kit fox and American badger are not disturbed during construction.

The following measures, derived from the USFWS (2011) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance*,[2] shall be implemented to avoid impacts on active burrows and dens:

- Within 30 days of construction, a qualified wildlife biologist shall conduct a preconstruction survey to assess the status of mammal burrows identified within 250 feet of the construction site where access is available.

- If occupied dens or burrows are found during the preconstruction survey, a no-disturbance buffer shall be created around each occupied den or burrow until it is determined to be unoccupied. Typical buffers include 250 feet from the den or burrow. The size of these buffer zones and types of construction activities restricted in these areas could be further modified during construction in coordination with CDFW and USFWS and shall be based on the existing level of noise and human disturbance on the Project site.

- If a preconstruction survey indicate that burrows are unoccupied during the construction period, no further action is required. Burrows within the construction footprint determined to be unoccupied by special-status burrowing wildlife, or that are outside the no-disturbance buffer for occupied dens or burrows, may be excavated.

- If a special-status burrowing mammal chooses to occupy a burrow next to an active construction site, then it is generally considered acclimated to construction activities and the no disturbance buffer can be reduced.

To avoid inadvertent impacts to western burrowing owl, the following protection measure is recommended for inclusion either as a project-proposed measure in the project description or as a mitigation measure:

Measure BIO-3: Ensure that active nest burrows of western burrowing owl are not disturbed during construction.

[2] https://www.fws.gov/sacramento/es/survey-protocols-guidelines/Documents/kitfox_standard_rec_2011.pdf

The following measures shall be implemented to avoid impacts on active nest burrows:

- Within 30 days of construction, a qualified wildlife biologist shall conduct a preconstruction survey following the survey protocol provided in the Staff Report on Burrowing Owl Mitigation (CDFG, 2012) to assess the status of potential nest burrows and culverts identified within 500 feet of the construction site where access is available.

- If occupied nest locations are found during the preconstruction survey, a no-disturbance buffer shall be created around the occupied burrow or culvert until it is determined to be no longer occupied. Typical buffers include 500 feet from the nest burrow. The size of these buffer zones and types of construction activities restricted in these areas could be further modified during construction in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the Project site.

- If the preconstruction survey indicates that burrows are unoccupied during the construction period, no further action is required. Burrows within the construction footprint determined to be unoccupied by burrowing owls, or that are outside the no-disturbance buffer for occupied burrows, may be excavated.

- If a burrowing owl chooses to occupy a burrow next to an active construction site, then it is generally considered acclimated to construction activities and the no disturbance buffer can be reduced.

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CHAPTER 5
References Cited

Barry, S.J. and H.B. Shafer, 1994. The status of the California tiger salamander (*Ambystoma californiense*) at Lagunita: a 50-year update. Copeia 1994:159-164, 1994.

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. State of California, Natural Resources Agency. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2017. California Natural Diversity Database. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA, November 2017.

Environmental Science Associates (ESA). 2018a. Deer Creek Solar I Project, Tulare County, California, Aquatic Resources Delineation Report. July 2018.

ESA. 2018b. Features that may be Subject to Section 1600 et seq. of Fish and Game Code within Deer Creek Solar I Project, Tulare County, California. October 2018.

Germano, D. J., and D. F. Williams. 1992. Recovering blunt-nosed leopard lizards: past efforts, present knowledge, and future opportunities. Transaction of the Western Section of The Wildlife Society 28:38-47.

Halstead, B.J., G. D. Wylie, and M. L. Casazza. 2015. Literature Review of Giant Gartersnake (*Thamnophis gigas*) Biology and Conservation. Prepared by United State Geological Survey in cooperation with the California Department of Water Resources, Open File Report 2015-1150.

Jennings, M. R., and M. P. Hayes, 1994. Amphibian and reptile species of special concern in California. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. pp. 225, 1994.

Loredo, I. Van Vuren, D. and M.L. Morrison, 1996. Habitat use and migration behavior of the California tiger salamander. Copeia 1996:895-901, 1996.

Orloff, S, 2007. Migratory Movements of California Tiger Salamander in Upland Habitat – A Five Year Study, Pittsburg, California. Prepared for Bailey Estates, LLC, May 2007.

Petranka, James W., 1998 Salamanders of the United States and Canada. Smithsonian Institution Press, 1998.

Stebbins, R. C., 2003 A Field Guide to Western Reptiles and Amphibians. Third Edition. Houghton Mifflin Company, Boston. 533 pp., 2003.

Stebbins, R. C. and S.M. McGinnis, 2012. A Field Guide to Amphibians and Reptiles of California. Revised Edition. University of California Press, Berkeley, Los Angeles, London. 300-301, 364-366, 374 pp., 2010.

Trenham, P., H.B. Shaffer, W.D. Koenig, and M.R. Stromberg, 2000. Life history and demographic variation of the California tiger salamander (*Ambystoma californiense*), (2):365-377, Copeia, 2000.

U.S. Fish and Wildlife Service (USFWS). 1985. Blunt-nosed leopard lizard revised recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon, 85 pp.

USFWS. 1998. Recovery plan for upland species of the San Joaquin Valley, California, U.S. Department of the Interior, Fish and Wildlife Service, Region 1, Portland, OR, 1998.

USFWS. 2011. Standardized Recommendations for Protection of the Endangered San Joaquin kit fox Prior to or During Ground disturbance. Prepared by the Sacramento Fish and Wildlife Office, January 2011.

USFWS. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005.

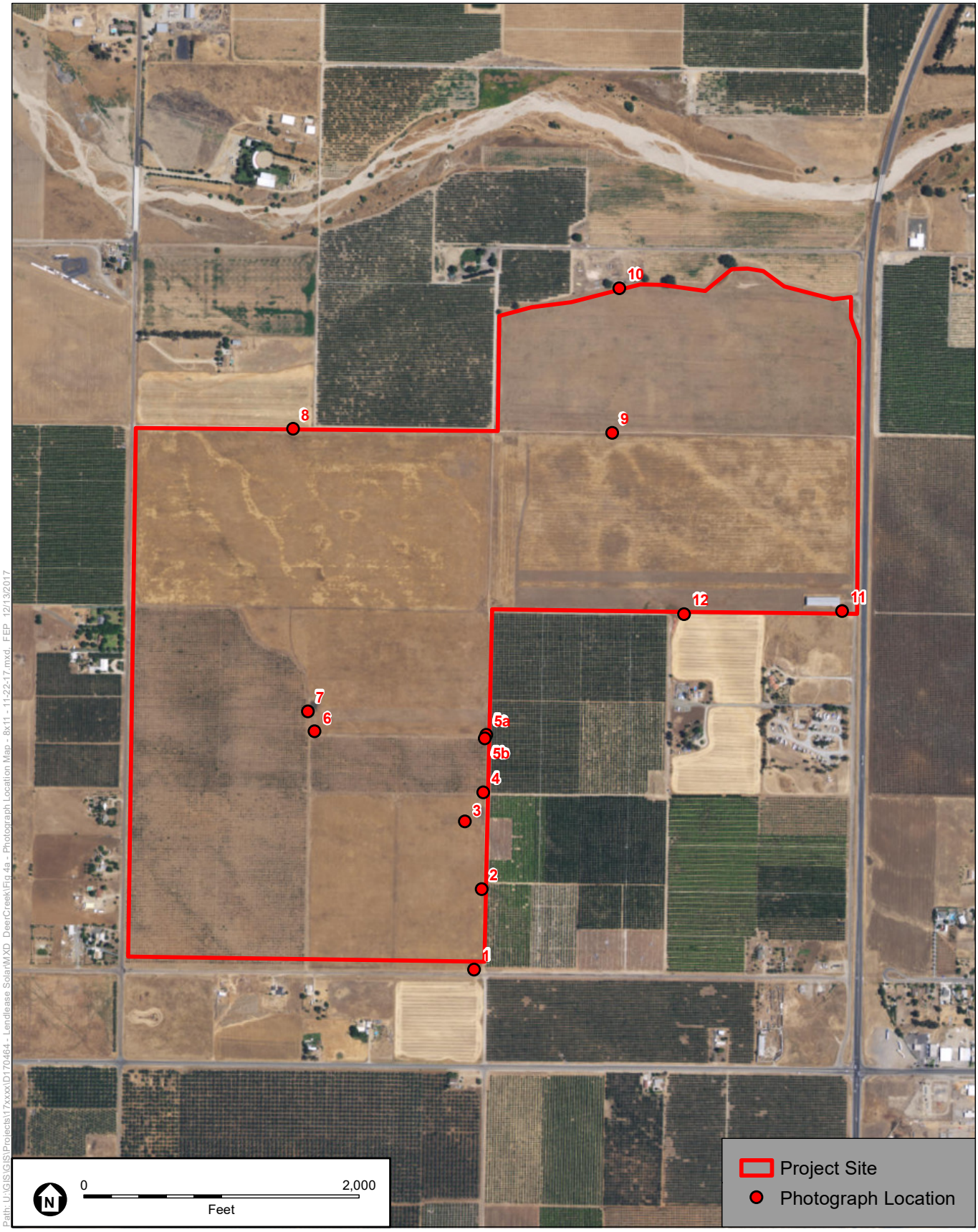
USFWS. 2017a. Official species list letter entitled, “List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.” Consultation code: 08ESMF00-2018-SLI-0452, Deer Creek Solar I Project, November 2017.

USFWS. 2017b. Deer Creek Solar I Project, IPaC Resources Report. Generated October 2017.

Zeiner, D.C., W.F. Laudenslayer, Jr., and K.E. Mayer, 1988. California's Wildlife, Vol. I-III, California Department of Fish and Game, 1988.

Appendix A

Representative Photographs of the Study Area



SOURCE: USDA, 2016; ESA, 2017

Figure 4

Photograph Location Map - Deer Creek Solar I Project

ESA

Deer Creek Solar I Project Photographs

Photo point 1a: View of tilled and mowed agricultural land just north of East Terra Bella Avenue.

Photo point 1b: View of tilled land facing northwest.

Photo point 1c: View of powerline parallel to East Terra Bella Avenue along the southern edge of the Project site.

Photo point 2: View of a burrow observed on the southern section of the Project site.

Photo point 3a: View of tilled land and orchard facing north.

Photo point 3b: View of tilled land and an orchard outside of the Project site facing east.

Photo point 3c: View of tilled land facing south.

Photo point 3d: View of tilled land facing west.

Photo point 4: View of abandoned orchard on the Project site.

Photo point 5a: View of the boundary between tilled land and the abandoned orchard.

Photo point 5b: View of burrows at the base of an orchard tree.

Photo point 6: View of wide burrow excavated near the edge of the abandoned orchard.

Photo point 7: View of abandoned orchard trees pulled out of the ground.

Photo point 8: View of California ground squirrel burrows near the northern edge of the site.

Photo point 9: View of tilled land and several large trees in the distance near the northern edge of the site.

Photo point 10: View of tilled land, large valley oak tree, and stored farm equipment on the adjacent property.

Photo point 11: View of barn shade inside a chain link fence with stored equipment within the Project site.

Photo point 12: View of a dirt access road, tilled land, and an orchard in the distance outside the Project site.

Appendix B
Official USFWS Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: November 16, 2017
Consultation Code: 08ESMF00-2018-SLI-0452
Event Code: 08ESMF00-2018-E-01202
Project Name: Deer Creek Solar 1 Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-0452

Event Code: 08ESMF00-2018-E-01202

Project Name: Deer Creek Solar 1 Project

Project Type: POWER GENERATION

Project Description: The existing agricultural land will be converted into a solar farm.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/35.97144181405544N119.06713246086079W

Counties: Tulare, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/321

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
San Joaquin Adobe Sunburst *Pseudobahia peirsonii*	Threatened

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/2931

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix C
IPaC Resources Reports

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Tulare County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
San Joaquin Kit Fox Vulpes macrotis mutica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

NOT FOR CONSULTATION

Tipton Kangaroo Rat Dipodomys nitratoides nitratoides — Endangered
No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/7247

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard Gambelia silus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

NOT FOR CONSULTATION

Flowering Plants

NAME	STATUS
San Joaquin Adobe Sunburst *Pseudobahia peirsonii* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2931	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species *themselves*.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are USFWS Birds of Conservation Concern that might be affected by activities in this location. The list does not contain every bird you may find in this location, nor is it guaranteed that all of the birds on the list will be found on or near this location. To get a better idea of the specific

locations where certain species have been reported and their level of occurrence, please refer to resources such as the E-bird data mapping tool (year-round bird sightings by birders and the general public) and Breeding Bird Survey (relative abundance maps for breeding birds). Although it is important to try to avoid and minimize impacts to all birds, special attention should be given to the birds on the list below. To get a list of all birds potentially present in your project area, visit the E-bird Explore Data Tool.

NAME	BREEDING SEASON
Black Swift Cypseloides niger https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black-chinned Sparrow Spizella atrogularis https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
California Spotted Owl Strix occidentalis occidentalis https://ecos.fws.gov/ecp/species/7266	Breeds Mar 10 to Jun 15
California Thrasher Toxostoma redivivum	Breeds Jan 1 to Jul 31
Common Yellowthroat Geothlypis trichas sinuosa https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird Calypte costae https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Lawrence's Goldfinch Carduelis lawrencei https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Lewis's Woodpecker Melanerpes lewis https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-billed Curlew Numenius americanus https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere
Marbled Godwit Limosa fedoa https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Mountain Plover Charadrius montanus https://ecos.fws.gov/ecp/species/3638	Breeds elsewhere

NOT FOR CONSULTATION

Nuttall's Woodpecker Picoides nuttallii https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Red Knot Calidris canutus ssp. roselaari https://ecos.fws.gov/ecp/species/8880	Breeds elsewhere
Rufous Hummingbird selasphorus rufus https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Snowy Plover Charadrius alexandrinus	Breeds Mar 5 to Sep 15
Song Sparrow Melospiza melodia pusillula https://ecos.fws.gov/ecp/species/3509	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird Agelaius tricolor https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Whimbrel Numenius phaeopus https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
White Headed Woodpecker Picoides albolarvatus https://ecos.fws.gov/ecp/species/9411	Breeds May 1 to Aug 15

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote when the bird breeds in the Bird Conservation Region(s) in which your project lies. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.

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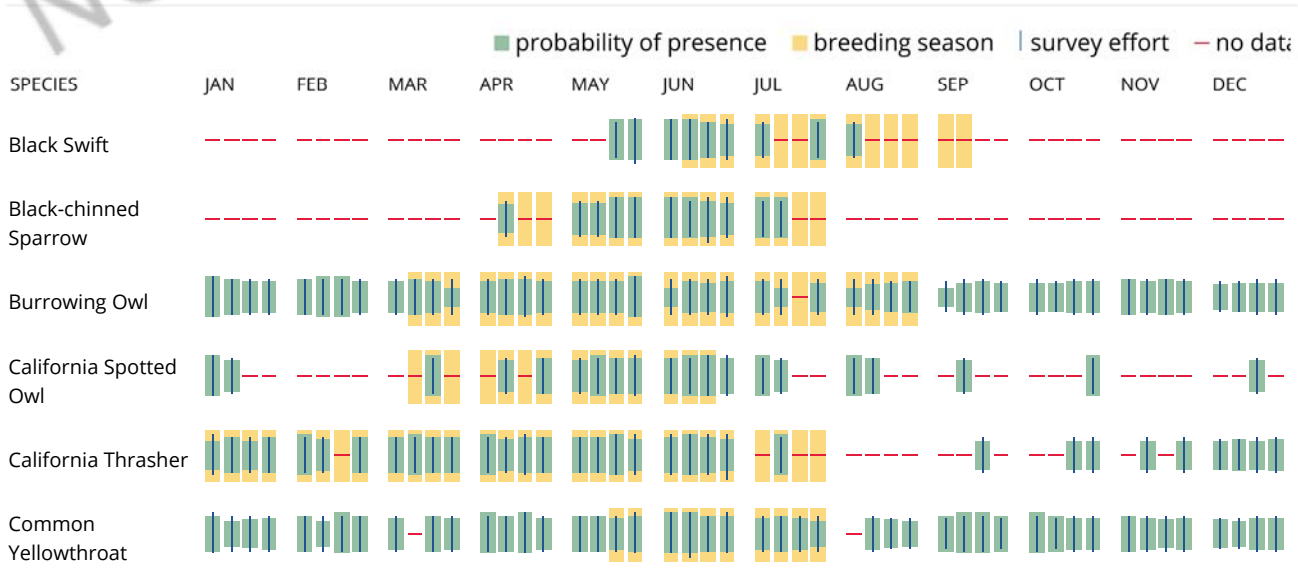

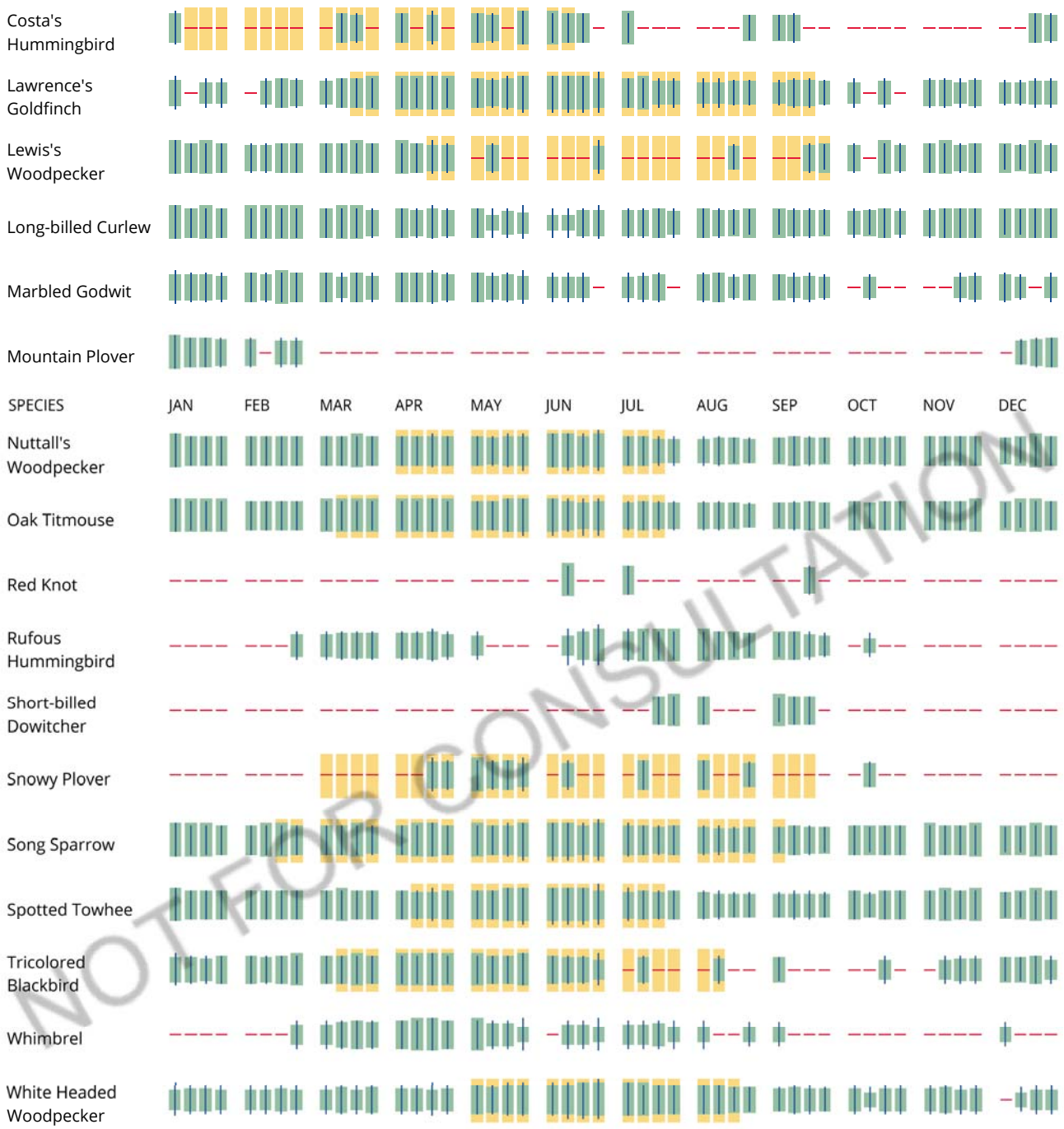

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Such measures are particularly important when birds are most likely to occur in the project area. To see when birds are most likely to occur in your project area, view the Probability of Presence Summary. Special attention should be made to look for nests and avoid nest destruction during the breeding season. The best information about when birds are breeding can be found in Birds of North America (BNA) Online under the "Breeding Phenology" section of each species profile. Note that accessing this information may require a subscription. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) that might be affected by activities in your project location. These birds are of priority concern because it has been determined that without additional conservation actions, they are likely to become candidates for listing under the Endangered Species Act (ESA).

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets. The AKN list represents all birds reported to be occurring at some level throughout the year in the counties in which your project lies. That list is then narrowed to only the Birds of Conservation Concern for your project area.

Again, the Migratory Bird Resource list only includes species of particular priority concern, and is not representative of all birds that may occur in your project area. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird entry on your migratory bird species list indicates a breeding season, it is probable the bird breeds in your project's counties at some point within the time-frame specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

NOT FOR CONSULTATION

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix C
Aquatic Resources Delineation

ESA

Final

DEER CREEK SOLAR I PROJECT
TULARE COUNTY, CALIFORNIA

Aquatic Resources Delineation Report

Prepared for
Deer Creek Solar I LLC

July 2018

ESA

Final

DEER CREEK SOLAR I PROJECT
TULARE COUNTY, CALIFORNIA

Aquatic Resources Delineation Report

Prepared for
Deer Creek Solar I LLC

July 2018

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
www.esassoc.com

ESA

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Camarillo	Orlando	Santa Monica
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Los Angeles	Sacramento	Tampa
Miami	San Diego	

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Deer Creek Solar I Project, Tulare County, California Aquatic Resources Delineation Report

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List of Figures (continued)

List of Tables

CHAPTER 1
Introduction

This report documents the methods, results and conclusions of an aquatic resources delineation conducted for the Deer Creek Solar I (Project) project site, located in Tulare County, California (**Figure 1**). A topographic map of the project site is provided in **Figure 2**. Environmental Science Associates (ESA) conducted a delineation to determine whether any aquatic features occur within the project site, and if so, whether the features are potentially jurisdictional wetlands and other waters of the U.S. subject to regulation under Section 404 of the Clean Water Act (CWA).

1.1 Directions to Site

Directions from Sacramento:

- Take CA-99 South for 228 miles.
- Take exit 70A toward Avenue 96/Terra Bella and turn right onto South Main Street.
- Turn right at the first cross street onto West Terra Bella Street and drive 8.3 miles.
- Turn right onto Road 192 and drive for 384 feet.
- Turn left onto Avenue 96/East Terra Bella Avenue and drive 2.4 miles.
- Take a slight right onto Avenue 95/Terra Bella Avenue and drive 2 miles to the southern boundary of the project site.

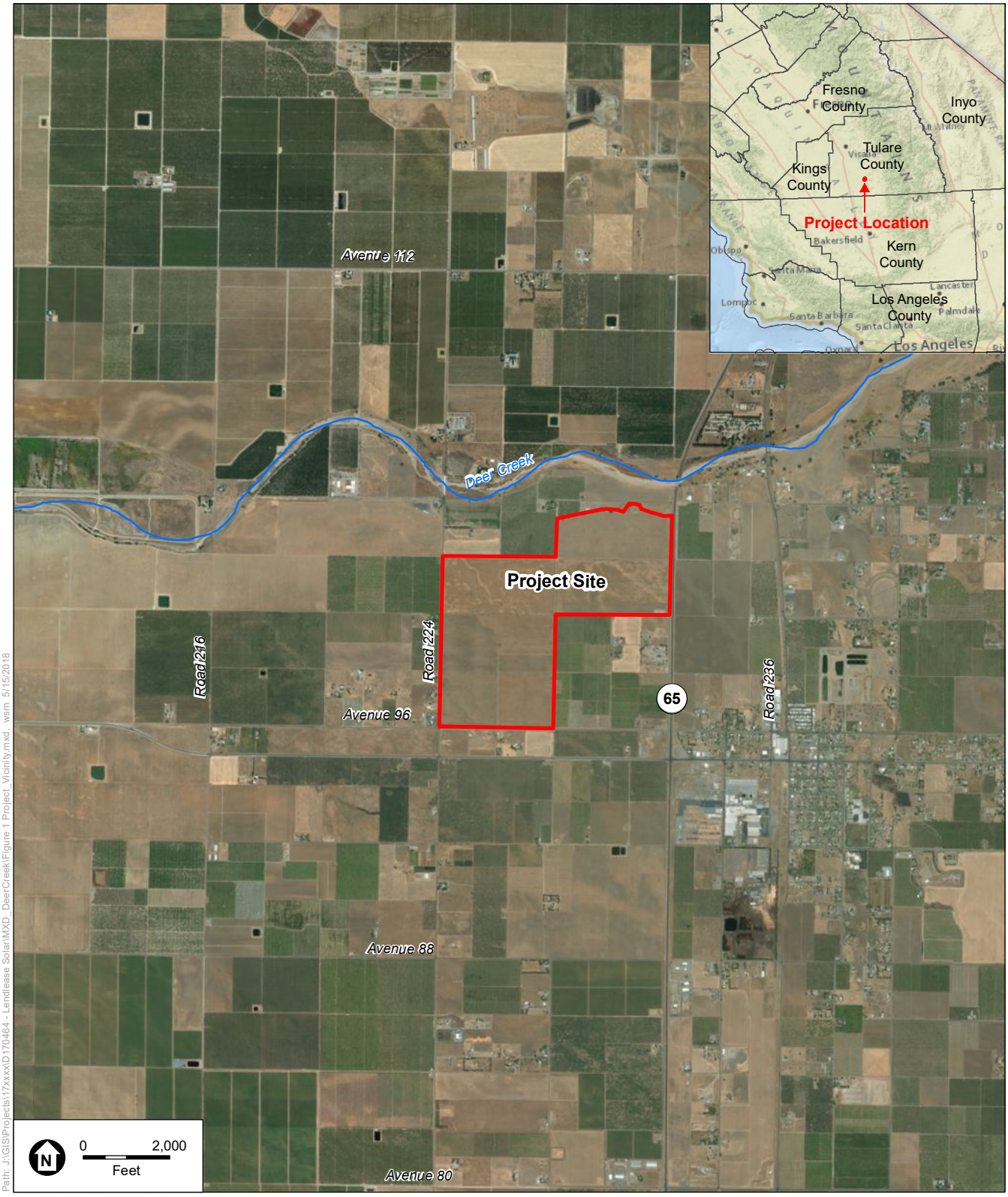
1.2 Contact Information

The responsible party and point of contact is:

Kelly Bayne
Environmental Science Associates
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816
(916) 564-4500
kbayne@esassoc.com

1.3 Purpose

Biologists did not identify any wetlands or waterways during an October 16, 2017 reconnaissance level biological survey of the project site. Because the survey was conducted during the dry season, it was determined that a formal delineation be conducted during the spring, towards the end of the rainy season. Therefore, the purpose of the May 2018 delineation was to confirm that no wetlands and waterways occur within the project site and to document the lack of aquatic features in this report.

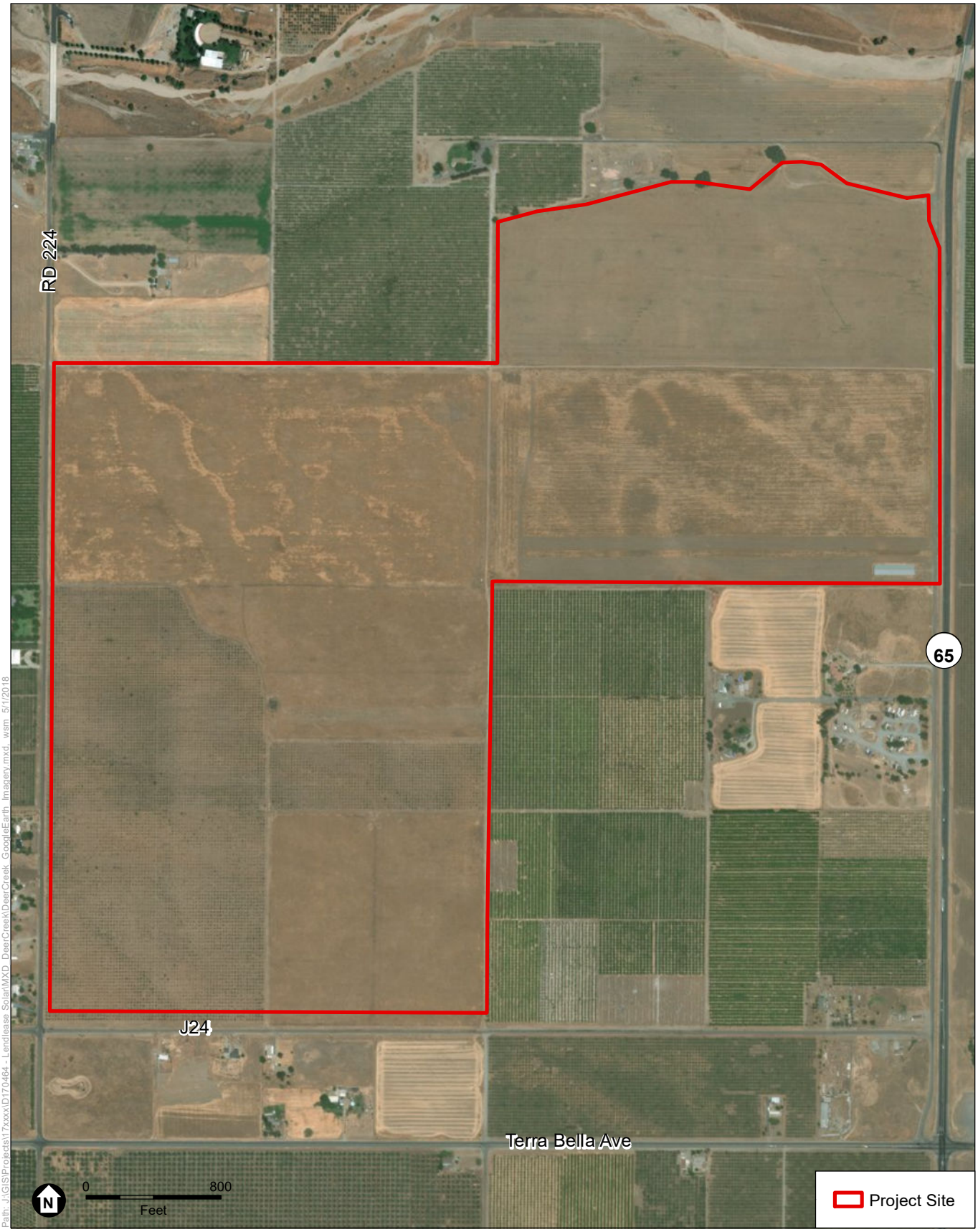


SOURCE:ESRI Imagery; ESA

Deer Creek Solar Project

Figure 1
Project Location

ESA



SOURCE: DigitalGlobe, 2016; ESA, 2018

Deer Creek Solar Project

Figure 2
Aerial Photo of Project Site

ESA

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CHAPTER 2
Regulatory Background

2.1 Regulatory Setting

The federal government defines "Waters of the U.S." in 33 CFR (Code of Federal Regulations) 328.3 as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the U.S. under the definition;
5. Tributaries of the above waters;
6. The territorial seas;
7. Wetlands adjacent to the above waters (other than waters that are themselves wetlands). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the U.S.
8. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the U.S. Environmental Protection Agency (EPA).

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Under normal circumstances, the definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands may

include freshwater marsh, seasonal wetlands, and vernal pool complexes that are adjacent to perennial waters of the U.S.

"Other waters of the U.S." refers to those hydric features that are regulated by the CWA but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high water mark. The term "ordinary high water mark" refers to that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Examples of other waters of the U.S. may include rivers, creeks, ponds, and lakes.

In January 2001, the U.S. Supreme Court issued a decision in the case of the *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* that altered the USACE regulatory authority over wetlands that are isolated from navigable waters.[1] On June 5, 2007, the EPA and the USACE released guidance on the definitions of jurisdictional waters of the U.S. in response to *Rapanos v. United States* and *Carabell v. United States*. According to this guidance the USACE and the EPA will take jurisdiction over the following waters:

1. Traditional navigable waters, which is defined as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. Wetlands adjacent to traditional navigable waters; including adjacent wetlands that do not have a continuous surface connection to traditional navigable waters;
3. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months);
4. Wetlands adjacent to non-navigable tributaries as defined above; that have a continuous surface connection to such tributaries (e.g., they are not separated by uplands, a berm, dike, or similar feature).

The EPA and the USACE decide jurisdiction over the following waters, based on a fact-specific analysis to determine if there is a significant nexus, as defined below, to a traditional navigable water (TNW):

1. Non-navigable tributaries that are not relatively permanent;
2. Wetlands adjacent to non-navigable tributaries that are not relatively permanent;
3. Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

[1] Since the SWANCC decision, waters covered solely by this definition by virtue of their use as habitat by migratory birds are no longer considered "waters of the U.S." The Supreme Court's opinion did not specifically address what other connections with interstate commerce might support the assertion of CWA jurisdiction over "nonnavigable, isolated, intrastate waters" under this definition, and USACE is recommending case-by-case consideration. A factor that may be relevant to this consideration includes, but is not limited to, the following: Jurisdiction of isolated, intrastate, and nonnavigable waters may be possible if their use, degradation, or destruction could affect other "waters of the U.S.," thus establishing a significant nexus between the water in question and other "waters of the U.S." (USACE and EPA, 2001).

The EPA and the USACE generally do not assert jurisdiction over the following features:

1. Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow);
2. Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The EPA and the USACE have defined the significant nexus standard as follows:

1. A significant nexus analysis assesses the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters;
2. Significant nexus includes consideration of hydrologic and ecologic factors including:
    a. Volume, duration, and frequency of flow, including consideration of certain physical characteristics of the tributary,
    b. Proximity to the traditional navigable water,
    c. Size of the watershed,
    d. Average annual rainfall,
    e. Average annual winter snow pack,
    f. Potential of tributaries to carry pollutants and flood waters to traditional navigable waters,
    g. Provision of aquatic habitat that supports a traditional navigable water,
    h. Potential of wetlands to trap and filter pollutants or store flood waters, and
    i. Maintenance of water quality in traditional navigable waters.

The USACE and EPA provided further clarification on the definitions of jurisdictional waters of the U.S. in response to *Rapanos* in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and EPA, 2007). This guidance states that:

- Certain geographical features (e.g., ditches, canals) that transport relatively permanent (continuous at least seasonally) flow directly into TNWs or between two (or more) waters of the U.S., including wetlands, are jurisdictional waters under the CWA.

- Certain geographical features (e.g., swales, ditches, pipes) may contribute to a surface hydrologic connection where the features:
    – replace or relocate a water of the U.S., or
    – connect a water of the U.S. to another water of the U.S., or
    – provide relatively permanent flow to a water of the U.S.

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CHAPTER 3
Methodology

3.1 Pre-Field Methods

Prior to conducting the delineation, the following background tasks were performed:

- Review of Ducor, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1952);
- Review of color aerial photography for vegetative, topographic, and hydrographic signatures;
- Review of the Online Web Soil Survey (NRCS, 2018a) for information about soils and geomorphology;
- Review of the National Hydric Soils List for Tulare County Area, California (NRCS, 2018b) to determine if any soils mapped within the project site are considered hydric at the level of soil series;
- Review of a Biological Resources Technical Report prepared for the project based on a reconnaissance level survey conducted on October 16, 2017 (ESA, 2018); and
- Review of the National Wetlands Inventory (U.S. Fish and Wildlife Service (USFWS, 2018).

3.2 Field Survey Methods

ESA senior biologists/botanists Kelly Bayne and Rachel Brownsey conducted a wetland delineation on May 2, 2018. Ms. Bayne and Ms. Brownsey each have over 12 years of experience conducting delineations throughout California.

The delineation was conducted using the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE, 2008), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed.

Three positive parameters must normally be present for an area to be considered a wetland: 1) a dominance of wetland vegetation, 2) presence of hydric soils, and 3) presence of wetland hydrology. Presence or absence of positive indicators for wetland vegetation, soils, and hydrology was assessed per the 1987 Manual and Arid West Supplement guidelines. Data points were taken within low spots and a paired point taken (where acceptable) in nearby uplands. Data points were recorded on Arid West wetland delineation forms, which are provided as **Appendix A**. Representative photographs of the project site are provided in **Appendix B**.

At each data point, a visual assessment of the dominant plant species within a 6-foot radius was made. Dominant species were assessed using the recommended "50/20" rule per the Arid West Supplement. Plants were identified to species using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al., 2012). The *National Wetland Plant List: 2016 Wetland Ratings* (Lichvar et al., 2016) was used to determine the wetland indicator status of all plants. Soils at each data point were characterized by color, texture, organic matter accumulation, and the presence or absence of hydric soil indicators. Color was described using Munsell soil color charts (Kollmorgen Instruments Corporation, 1990). Presence of wetland hydrology was determined at each data point by presence of one or more of the primary and/or secondary indicators, per guidance of the Arid West Supplement.

3.3 Mapping and Acreage Calculations

Sample points were recorded using a Global Positioning System (GPS) unit (Trimble GeoXT) with real-time differential correction and an instrument-rated mapping accuracy of +/- one meter. Data from soil pits was downloaded from the GPS unit and mapped using Geographic Information System (GIS) software on an overlay of both topography and geo-referenced aerial photography. GPS-determined data points were visually confirmed.

CHAPTER 4
Setting

4.1 Soils

The Natural Resources Conservation Service (NRCS) mapped 5 soils units within the project site (NRCS, 2018a). The locations of the soil units are shown in **Figure 3**. A description of each soil unit is provided below.

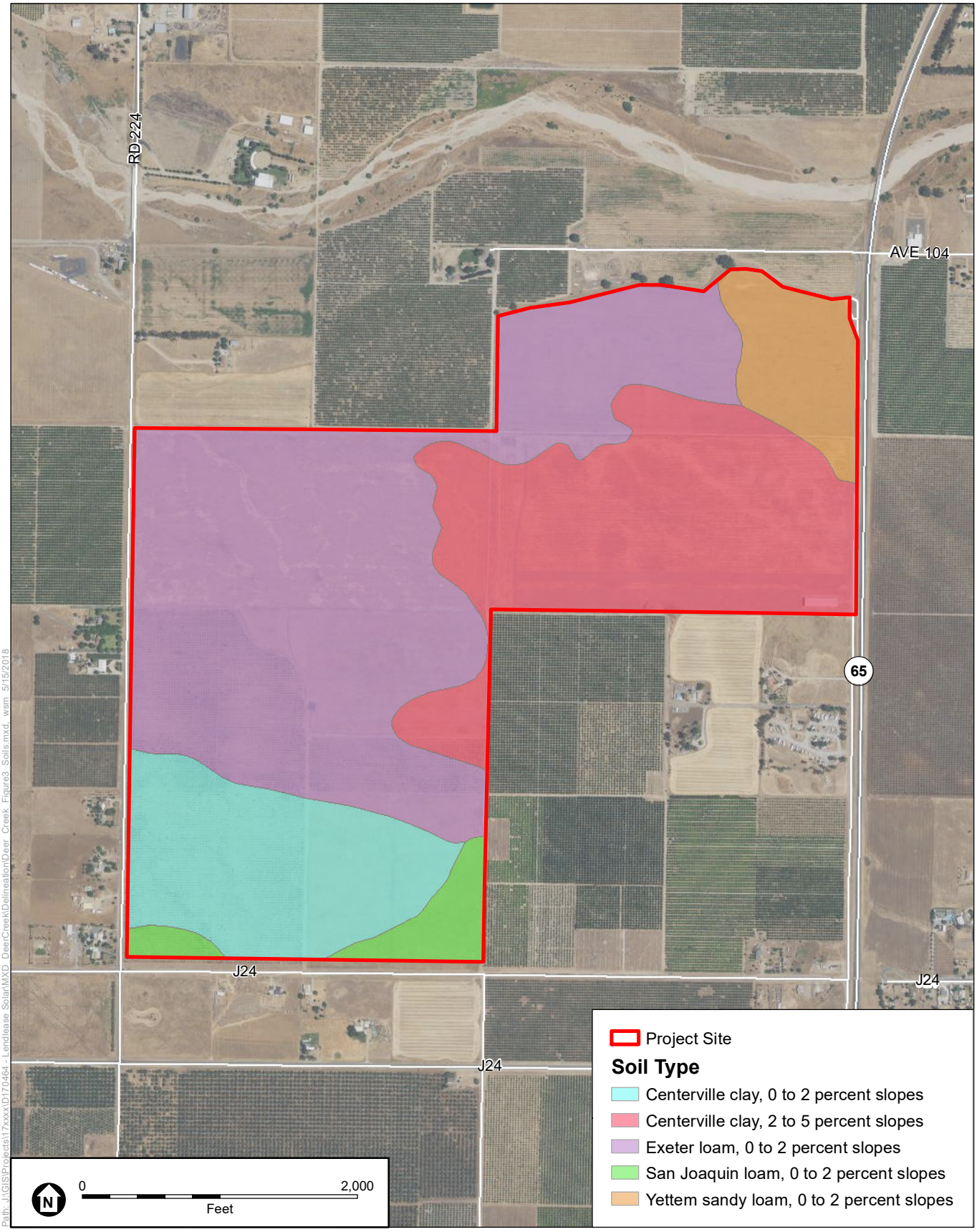
- **Centerville clay, 0 to 2 percent slopes (map unit symbol 106)**, is listed as hydric within depressions by the NRCS (NRCS, 2018b). Included in this map unit are minor components of Exeter, San Joaquin, and Unnamed, Ponded soils. The Unnamed, Ponded soil is considered hydric. The map unit composition is 90 percent Centerville and similar soils and 10 percent minor components. This unit consists of moderately well drained soils on fan remnants.

- **Centerville clay, 2 to 5 percent slopes (map unit symbol 107)**, is listed as hydric within depressions by the NRCS (NRCS, 2018b). Included in this map unit are minor components of Exeter, San Joaquin, and Unnamed, Ponded soils. The Unnamed, Ponded soil is considered hydric. The map unit composition is 90 percent Centerville and similar soils and 10 percent minor components. This unit consists of moderately well drained soils on fan remnants.

- **Exeter loam, 0 to 2 percent slopes (map unit symbol 114),** is listed as hydric within depressions by the NRCS (NRCS, 2018b). Included in this map unit are minor components of Hanford, Colpien, San Joaquin, Quonal, Calgro, and Unnamed, Ponded soils. The Unnamed, Ponded soil is considered hydric. The map unit composition is 85 percent Exeter and similar soils and 15 percent minor components. This unit consists of moderately well drained soils on fan remnants.

- **San Joaquin loam, 0 to 2 percent slopes (map unit symbol 135)**, is not listed as hydric by the NRCS (NRCS, 2018b). Included in this map unit are minor components of Tujunga, Exeter, Colpien, and Akers soils. The map unit composition is 85 percent San Joaquin and similar soils and 15 percent minor components. This unit consists of moderately well drained soils on fan remnants.

- **Yettem sandy loam, 0 to 2 percent slopes (map unit symbols 143 and 176)**, is listed as hydric within floodplains by the NRCS (NRCS, 2018b). Included in this map unit are minor components of Grangeville, Havala, San Emigdio, Tujunga, Unnamed, and Unnamed, clayey substratum. The Grangeville soil is considered hydric. The map unit composition is 85 percent Yettem and similar soils and 15 percent minor components. This unit consists of moderately well drained soils on alluvial fans.



SOURCE: USDA, 2017; ESA, 2017

Deer Creek Solar Project

Figure 3
Soils on the Project Site

ESA

4.2 Precipitation

The climate is temperate with a mean annual precipitation of 10.90 inches and mean annual temperatures ranging from a high of 78.3 to a low of 49.1 degrees Fahrenheit (Western Regional Climate Center, 2018). The mean annual precipitation and temperature was obtained from the Angiola, California (040204) from August 1899 to March 1982. Total precipitation documented within Porterville-San Joaquin Valley, Station 169, weather station from May 2017 to April 2018 was 4.4 inches (California Irrigation Management Information System; CIMIS, 2018). Therefore, the total rainfall during the 2017-2018 season was 60 percent less than the mean annual precipitation documented for the previous 81 years.

4.3 Topography

The northern portion of the project site was laser-levelled in 1988. Topography within the central and southern portions of the project site consists of flat to rolling hills. Elevation is between 440 to 450 feet above mean sea level across the project site.

4.4 Hydrology

The project site is located within the Deer Creek watershed. Deer Creek is located just north of the project site and runs westward, eventually terminating at the Lakeland and Homelands Canals. None of these aquatic features are considered traditional navigable waters of the U.S. (TNW).

The hydrology within the project site is managed. Irrigation water available for the area is largely limited to surface water deliveries from the U.S. Bureau of Reclamation via the Friant-Kern Canal and onsite via five wells. Based on the site visit, the manmade drainage swales were excavated in upland areas, lacked a defined bed and bank, lacked hydric vegetation, and contained no ponded water during the May 2, 2018 delineation.

4.5 Vegetation

Plant communities are assemblages of plant species that occur together in the same area, and are defined by species composition and relative abundance. Plant communities within the project site include agricultural, disturbed, and developed. These plant communities are discussed further below.

4.5.1 Agricultural Field

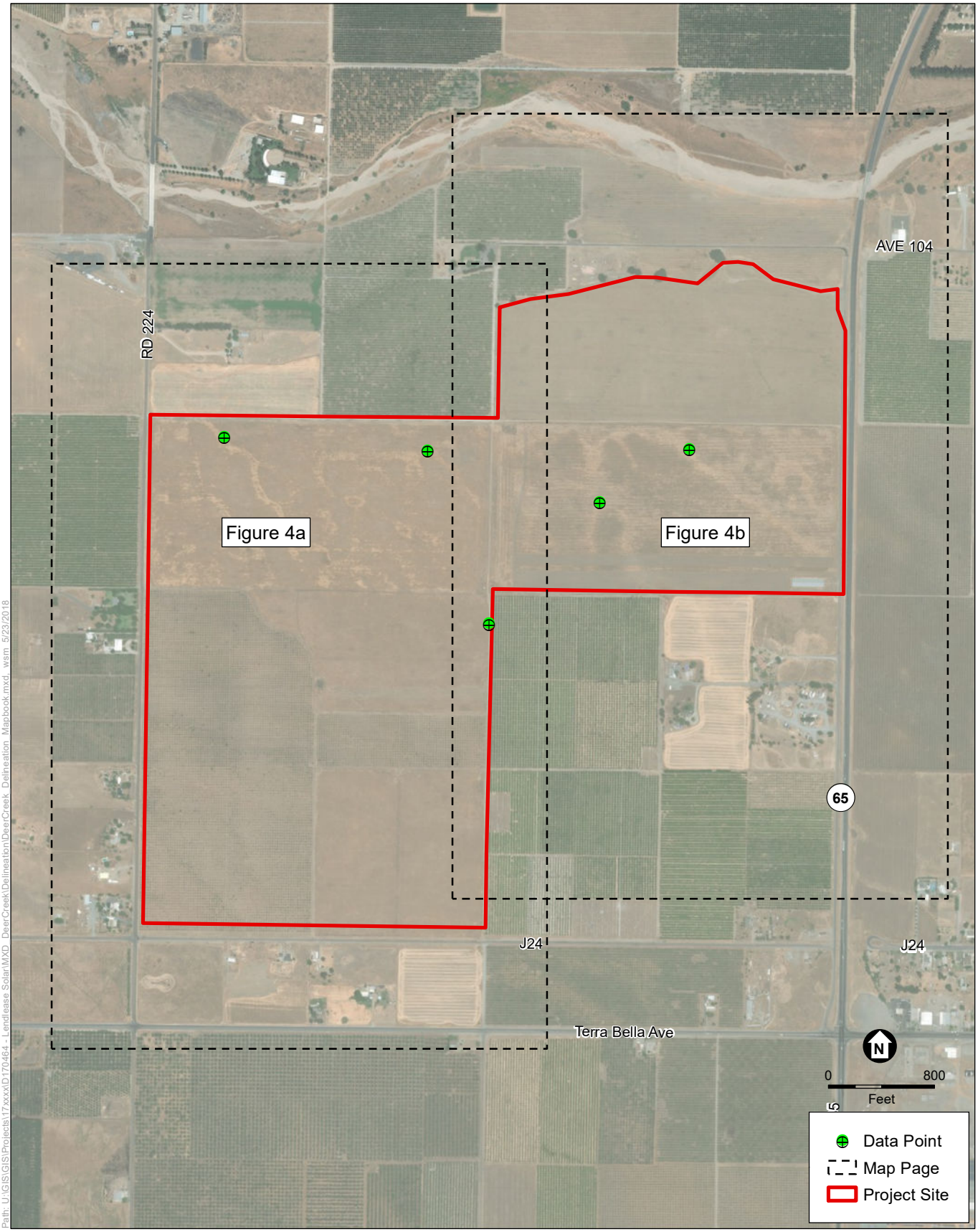
The majority of the project site consists of agricultural land. The agricultural land consists primarily of planted wheat (*Triticum* sp.) that is dry-farmed with a portion that is irrigated. Dominant vegetation includes sparely planted wheat (*Triticum* sp.) interspersed with wall barley (*Hordeum murinum*), slender wild oat (*Avena barbata*), and bindweed (*Convolvulus arvensis*).

4.5.2 Agricultural Abandoned Orchard

Abandoned orchards occur within the southern portion of the project site. The orchard trees in the southwestern portion of the project site had been removed or remain stockpiled onsite. Dominant vegetation includes slender wild oat and wall barley.

4.5.3 Developed

Developed areas within the project site include graded roads and a warehouse. Minimal vegetation occurs in these areas.



SOURCE: DigitalGlobe, 2016; ESA, 2018

Deer Creek Solar Project

Figure 4
Wetland Delineation Index

ESA

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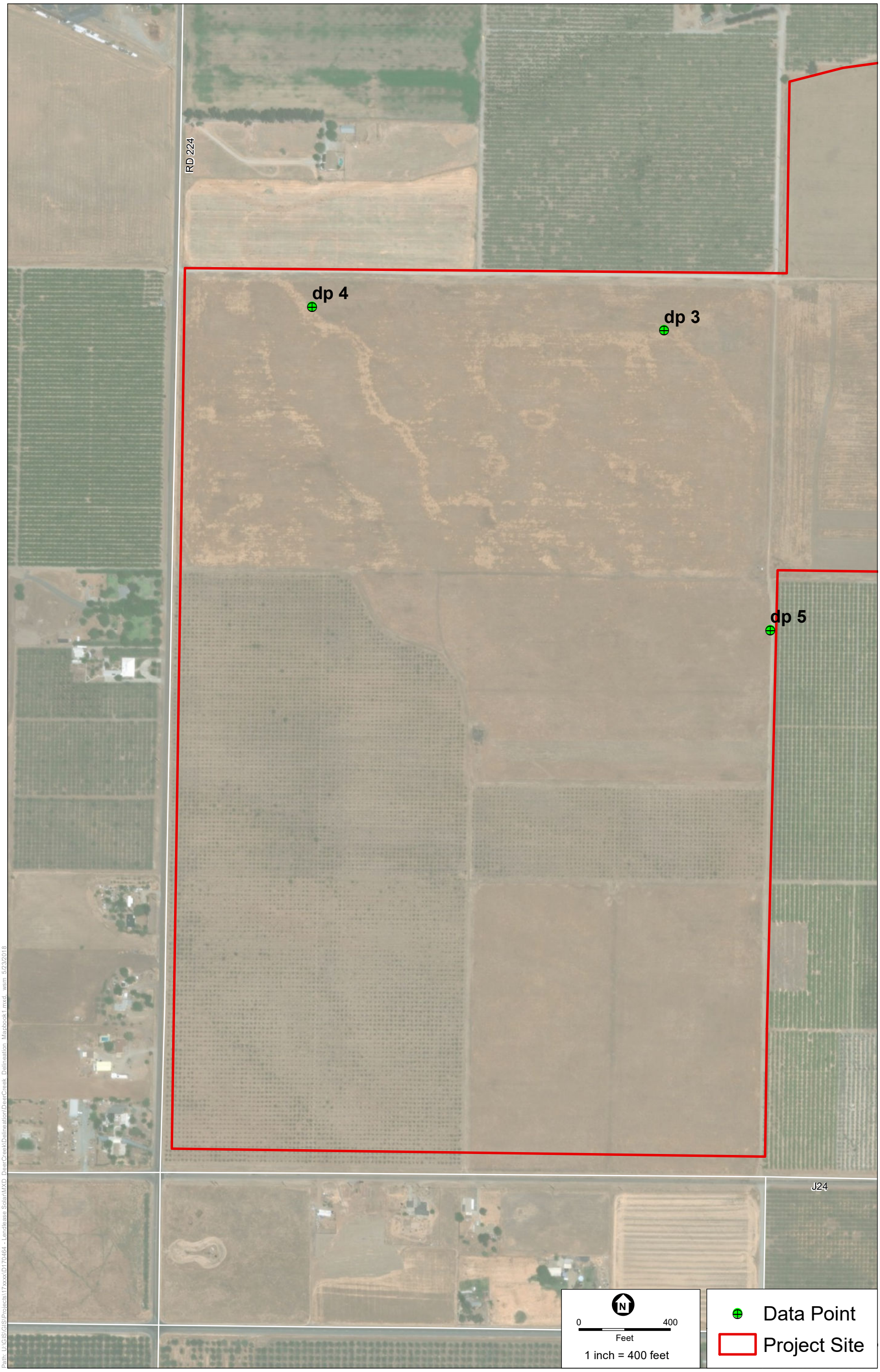
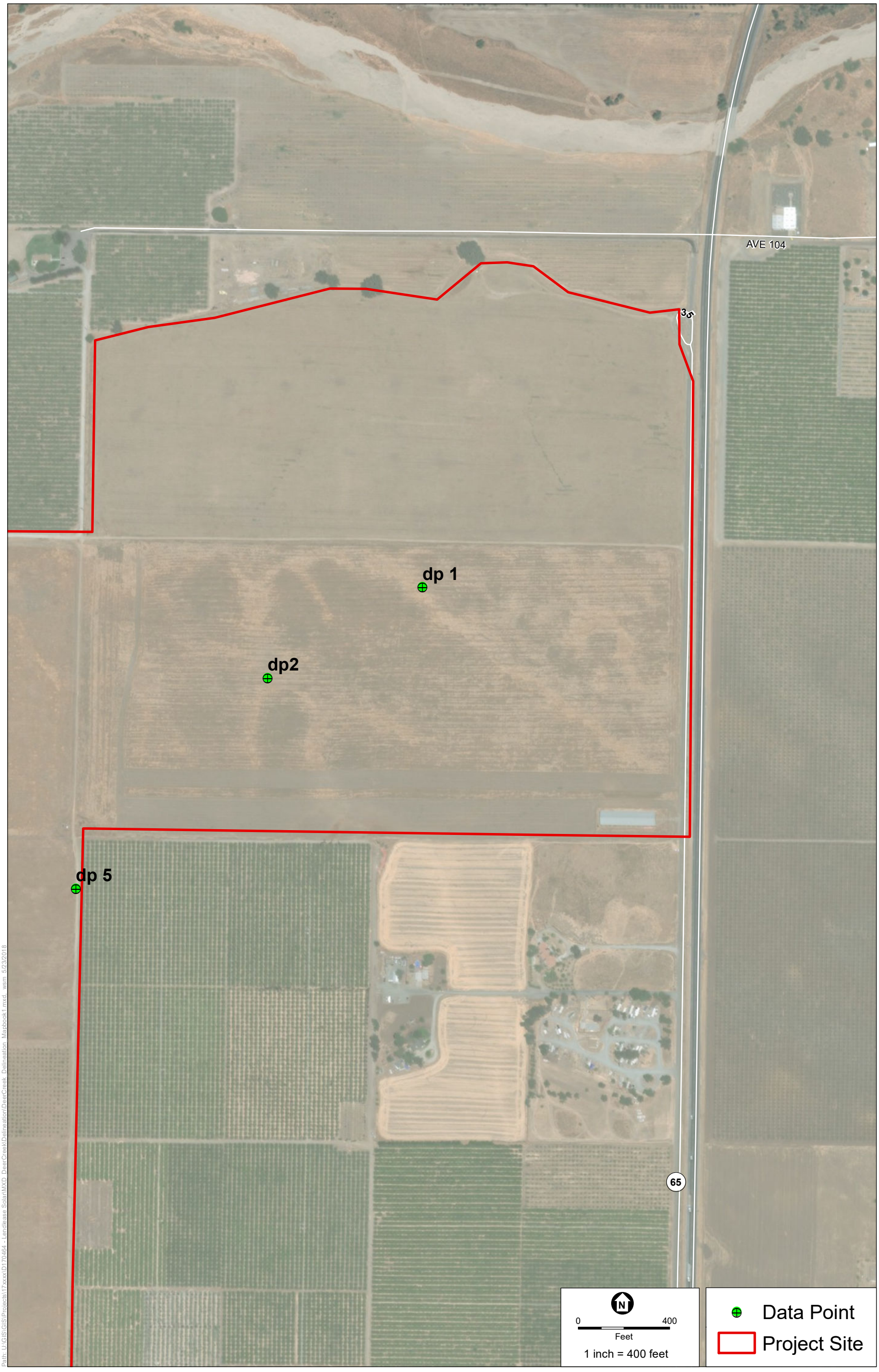


SOURCE: DigitalGlobe, 2016; ESA, 2018

Deer Creek Solar Project

Figure 4 a
Delineation of Wetlands and
Other Waters of the U.S.

ESA



SOURCE: DigitalGlobe, 2016; ESA, 2018

Deer Creek Solar Project

Figure 4 b
Delineation of Wetlands and Other Waters of the U.S.

ESA

CHAPTER 5
Results

5.1 Results

No aquatic features were observed within the project site during the May 2, 2018 delineation. Soil pits were mapped from sp01 to sp05 on the Wetland Determination Data Forms (**Appendix A**). All soil pits were taken in topographic low points within the project site. **Table 1** identifies the hydrophytic indicator status of each of the dominant plants. An overall view of the soil pit locations within the project site is illustrated on **Figure 4**.

TABLE 1.
HYDROPHYTIC INDICATOR STATUS BY DOMINANT PLANT SPECIES OBSERVED

Dominant Plant Species Observed	National Wetland Indicator Status[1]
Wheat (*Triticum aestivum*)	UPL
Slender wild oat (*Avena barbata*)	UPL
Bindweed (*Convolvulus arvensis*)	UPL
Black mustard (*Brassica nigra*)	UPL
Hedge mustard (*Sisymbrium officinale*)	UPL

[1] OBL=obligate; FACW=facultative wet; FAC=facultative; FACU=facultative upland; UPL=Upland
SOURCE: Lickvar, et. al., 2016

The National Wetland Inventory mapped an agricultural ditch in the northern section of the project site (USFWS, 2018). However, this feature is no longer present. The few manmade irrigation swales occur within the project site. These were previously excavated in upland soils, do not drain off-site, lack defined bed and banks, and lack hydric vegetation. No potential jurisdictional features occur within the project site.

5.2 Conclusions

This report documents the best professional judgement of the ESA investigators. No acres of potentially jurisdictional wetlands occur within the project site. Therefore, no impacts to waters of the U.S. would occur as a result of future actions and any future actions within the project site would not be subject to regulations under Section 404 of the CWA.

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CHAPTER 6
References

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors, 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center (Version 04DEC98).

Environmental Laboratory, 1987. Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1). U.S. Army Corps of Engineers Waterways Experimental Station. Vicksburg, MS.

Kollmorgen Instruments Corporation, Macbeth Division, 1990. Munsell Soil Color Charts, Baltimore, MD.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin, 2016. The National Wetland Plant List: 2016 Wetland Ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

Natural Resources Conservation Service (NRCS), 2018a. Web Soil Survey. Available: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed May 9, 2018.

Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture, 2018b. List of Hydric Soils. Available: www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric. Accessed May 9, 2018.

Terra Bella Irrigation District. 2013. Agricultural Water Management Plan: Five Year Update. Available: https://www.usbr.gov/mp/watershare/docs/2013/terra-bella%20.pdf. Accessed May 24, 2018.

U.S. Army Corps of Engineers (USACE), 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA), 2001. Memorandum: INFORMATION: Supreme Court Ruling Concerning CWA Jurisdiction over Isolated Waters. January. Available: www.environment.fhwa.dot.gov/ ecosystems/laws_swepacoe.asp.

U.S. Army Corps of Engineers (USACE), 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS.

U.S. Army Corps of Engineers (USACE), 2016. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. U.S. Army Corps of Engineers. January 2016.

U.S. Geological Survey (USGS), 1952. Ducor 7.5-Minute Quadrangle, California. NW/4 Terra Bella 15' Quadrangle. N3552.5-W11900/7.5. Photorevised 1969. AMS 2155 I NE-Series V895.

U.S. Fish and Wildlife Service (USFWS), 2018. National Wetlands Inventory. Available: www.fws.gov/wetlands/Data/Mapper.html. Accessed May 8, 2018.

Western Regional Climate Center, 2018. Period of Record General Climate Summary for Porterville, California (047077), 1902-2004. Available: www.wrcc.dri.edu/coopmap. Accessed May 24, 2018.

Appendix A
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Deer Creek Solar | City/County: Tulare | Sampling Date: 5/2/2018
Applicant/Owner: Deer Creek Solar I LLC | State: CA | Sampling Point: SP01
Investigator(s): Rachel Brownsey, Kelly Bayne | Section, Township, Range:
Landform (hillslope, terrace, etc.): Valley Botttom | Local relief (concave, convex, none): Concave | Slope (%): <1
Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:
Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [X] Soil [X] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Point located in a low valley bottom landscape position. This field was planted with wheat which grows sparsely throughout the entire field as well as in the low area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Triticum aestivum*	12	Yes	UPL
2. *Convolvulus arvensis*	<1	No	UPL
3. *Brassica nigra*	3	Yes	UPL
4. *Avena barbata*	<1	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 85 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	15 (A)		75 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Wheat within the low area died before reproducing fruit. Wheat on slopes and hilltops have in most areas reached anthesis. Cover is sparse throughout.

SOIL

Sampling Point: SP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 3/2	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil has been tilled; only the surface 6" (tilled zone) could be dug up. Below 6 inches, soil was too hard to dig.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: No inundation visible on aerial imegary, only signatures of greener or browner zones in low points. No hydric soil indicators present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Deer Creek Solar | City/County: Tulare | Sampling Date: 5/2/2018
Applicant/Owner: Deer Creek Solar I LLC | State: CA | Sampling Point: SP02
Investigator(s): Rachel Brownsey, Kelly Bayne | Section, Township, Range:
Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): Concave | Slope (%): <1
Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:
Soil Map Unit Name: | NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)
Are Vegetation [X] Soil [X] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Point located in low point in field. Conditions nearly identical to SP1. Slightly higher cover of Sisymbrium officinale and Avena barbata. Cultivated field - tilled and planted with wheat.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Triticum aestivum*	8	Yes	UPL
2. *Sisymbrium officinale*	5	Yes	UPL
3. *Avena barbata*	2		UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 85 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	15 (A)		75 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Triticum aestivum died before flowering. Some of the Sisymbrium officinale died too. Cover of Avena barbata is higher on surrounding slopes and hilltops.

SOIL

Sampling Point: SP02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/2	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 8

Hydric Soil Present? Yes ○ No ◉

Remarks: Hardpan at 8"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Deer Creek Solar | City/County: Tulare | Sampling Date: 5/2/2018

Applicant/Owner: Deer Creek Solar I LLC | State: CA | Sampling Point: SP03

Investigator(s): Rachel Brownsey, Kelly Bayne | Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☒ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Point located in very gently sloping terrace within a tilled, cultivated wheat field.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Triticum aestivum*	5	Yes	UPL
2. *Avena barbata*	12	Yes	UPL
3. *Convolvulus arvensis*	<1		UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	17 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 83 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	17	x 5 =	85
Column Totals:	17 (A)		85 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: Grasses have mostly senesced.

SOIL

Sampling Point: SP03

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/3	100					Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 8

Hydric Soil Present? Yes ○ No ◉

Remarks: Hardpan at 8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: No hydric soil indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Deer Creek Solar | City/County: Tulare | Sampling Date: 5/2/2018
Applicant/Owner: Deer Creek Solar I LLC | State: CA | Sampling Point: SP04
Investigator(s): Rachel Brownsey, Kelly Bayne | Section, Township, Range:
Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): Concave | Slope (%): <1
Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:
Soil Map Unit Name: | NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)
Are Vegetation [X] Soil [X] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Point located in valley bottom corresponding with dark signature on aerial. Tilled, cultivated wheat field. Very similar conditions to previous plots.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Triticum aestivum*	7	Yes	UPL
2. *Avena barbata*	7	Yes	UPL
3. *Convolvulus arvensis*	0.5		UPL
4. *Sisymbrium irio*	0.5		UPL
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 85 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	15 (A)		75 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:
- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: SP04

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 3/2	100					Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6"

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Deer Creek Solar | City/County: Tulare | Sampling Date: 5/2/2018
Applicant/Owner: Deer Creek Solar I LLC | State: CA | Sampling Point: SP05
Investigator(s): Rachel Brownsey, Kelly Bayne | Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): <1
Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:
Soil Map Unit Name: | NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ( )	No (●)	**within a Wetland?** Yes ( ) No (●)

Remarks: Point located at allow point on the edge of the field that appears to have been avoided from harvest, tilling, and/or planting - although some wheat is present.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Triticum aestivum*	3		UPL
2. *Convolvulus arvensis*	35	Yes	UPL
3. *Malva parviflora*	5		UPL
4. *Phalaris minor*	10		UPL
5. *Erodium cicutarium*	5		UPL
6. *Medicago polymorpha*	2		UPL
7. *Festuca perennis*	<1		FAC
8. *Avena barbata*	8		UPL
Total Cover:	68 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 32 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	0	x 3 =	0
FACU species		x 4 =	0
UPL species	68	x 5 =	340
Column Totals:	68 (A)		340 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Hordeum murinum with less than 1% cover.
Vegetation at this point is all green, flowering, while surrounding vegetation is brown/senesced.

SOIL

Sampling Point: SP05

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/3	100					Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 8

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil has been tilled in the past.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: Deep soil cracking, but no surface soil cracking.

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Appendix B
Project Site Photographs

Deer Creek Solar I Project. 170464

Photograph 1
View northeast of the laser-levelled field located in the northern portion of the project site. May 2, 2018

Deer Creek Solar I Project. 170464

Photograph 2
View northeast of the laser-levelled field located in the northern portion of the project site. May 2, 2018

Deer Creek Solar I Project. 170464

Photograph 3
View of soils at soils pit 2 within the project site. May 2, 2018

Deer Creek Solar I Project. 170464

Photograph 4
View northwest of abandoned orchard within the central portion of the project site. May 2, 2018

Deer Creek Solar I Project. 170464

Photograph 5
View northwest of remnant orchard within the southwestern portion of the project site. May 2, 2018

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Appendix D
Section 1600 CDFG Memo

ESA

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memorandum

date	October 4, 2018
to	Peter Zullo Deer Creek Solar I LLC
from	Joshua Boldt Senior Biologist
subject	Features that may be Subject to Section 1600 et seq. of Fish and Game Code within the Deer Creek Solar I Project, Tulare County, California

Introduction

Environmental Science Associates (ESA) prepared this technical memorandum (memo) to provide documentation that the Deer Creek Solar I Project site (see Figure 1), located within Tulare County, California, does not contain any features, such as lakes, rivers, or streams, that may be regulated by the California Department of Fish and Wildlife (CDFW) under Section 1600 et seq. of the Fish and Game Code. The proposed Project includes a photovoltaic (PV) energy generation facility, battery energy storage system, and associated infrastructure on 378 acres. Habitat within the Project site consists of agricultural field, agricultural abandoned orchard, and developed land. The agricultural field consists of planted wheat (*Triticum* sp.).

Regulatory Setting

California Fish and Game Code Section 1600 et seq.

CDFW regulates activities that may alter streams and lakes (and the wetland resources associated with these aquatic systems) under California Fish and Game Code Section 1600 et seq. through administration of lake or streambed alteration agreements. Such an agreement is not a permit, but rather a mutual accord between CDFW and a project proponent. Under Sections 1600 et seq. of the California Fish and Game Code (FGC), CDFW has the authority to regulate work that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river lake or stream."

"Stream" is not defined in the FGC and CDFW has not promulgated any regulation that defines "stream." However, the Fish and Game Commission has defined "stream" in section 1.72 in Title 14 of the California Code of Regulations as follows:

> [A] body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.

Nevertheless, according to "Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants" (CSU Fresno and CDFW, 2014), the 14 CCR 1.72 definition of a "stream" was developed to address a specific sports fishing issue that came before the Fish and Game Commission. It is therefore not used by CDFW in general, and does not apply to FGC Section 1600 et seq. Therefore, this definition is considered obsolete by CDFW and should not be used to determine what features or areas may be subject to regulation under FGC.

In practice, under FGC Section 1600 et seq, CDFW has interpreted the term "stream" to encompass all portions of the bed, banks, and channel of any stream or channel, including intermittent and ephemeral streams, extending laterally to the top of bank or outside extent of riparian vegetation, whichever is the greatest. Within the stream, waters of the state of California are typically delineated to include the streambed to the top of the bank and adjacent areas that would meet any one of the three wetland parameters in the U.S. Army Corps of Engineers definition (vegetation, hydrology, and/or soils). Whereas federal jurisdiction requires meeting all three parameters, in practice meeting one parameter, or even the presence (rather than dominance) of wetland plants in an area associated with a jurisdictional streambed may qualify an area as subject to regulation under FGC Section 1600 et seq. However, isolated wetlands and wetlands not associated with a streambed are not subject to CDFW regulation.

Porter-Cologne Water Quality Control Act

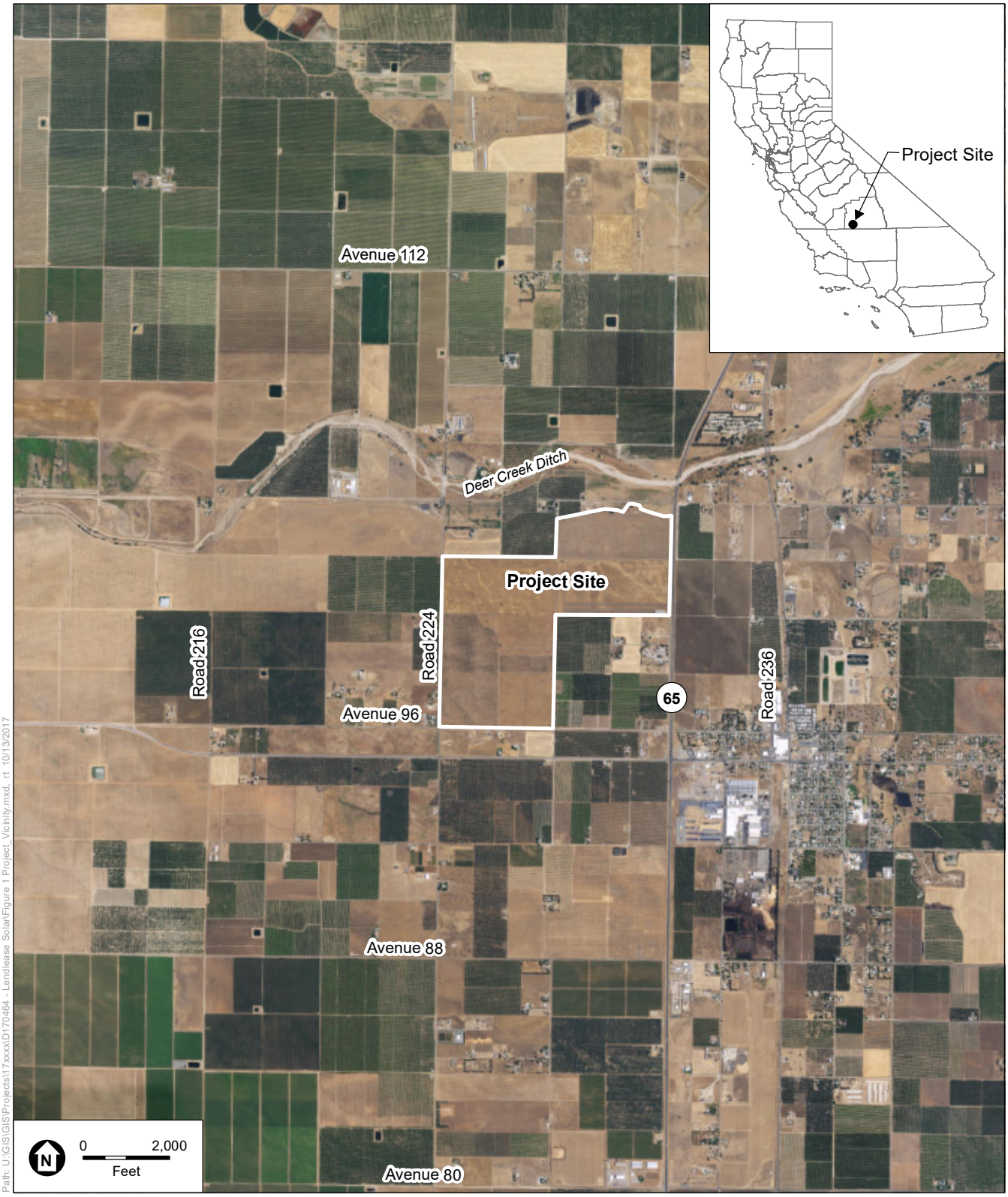
The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) (together "Boards") are the principal state agencies with primary responsibility for the coordination and control of water quality. In the Porter-Cologne Water Quality Control Act (Porter-Cologne), the Legislature declared that the "state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation..." (California Water Code Section 13000). Section 13050 of the California Water Code defines "waters of the state" broadly to include "any surface or groundwater, including saline waters, within the boundaries of the state." All features that are protected as "waters of the United States" under federal law are necessarily also waters of the state, but the Water Boards have not developed a complete list or categorical descriptions of all other features that qualify as waters of the state. Therefore, in some cases, the Water Boards must determine whether a particular feature is a water of the state on a case-by-case basis.

The Porter-Cologne Act is California's statutory authority for the protection of water quality. Anybody discharging "waste" (including clean fill, riprap or other revetment, excavation sidecasting, dredge spoils, soil displaced while clearing vegetation, etc.) where it could affect waters of the state (any surface or sub-surface water) must first file a Report of Waste Discharge with the appropriate Regional Water Board. The Regional Water Boards issue and enforce waste discharge requirements (WDR), NPDES permits, Section 401 water quality certifications, and other approvals. This is completed during the Section 401 process for those waters of the State

also covered under the Clean Water Act. For waters of the State not covered under the Clean Water Act, the Regional Water Boards regulates discharges using the Porter-Cologne Act.

Results

ESA conducted a delineation of the Project site on May 2, 2018. No aquatic features were observed during the delineation, as identified in the Aquatic Resources Delineation Report (ESA, 2018). Although the National Wetland Inventory mapped an agricultural ditch in the northern section of the Project site (USFWS, 2018), this feature is no longer present on the site. A number of small, temporary agricultural irrigation swales were noted in the Project site. The remnant manmade irrigation swales present within the Project site were previously excavated in upland soils, do not drain offsite, lack defined bed and banks, lack hydric vegetation, and lack a surrounding riparian corridor. Since these features are excavated in dry land, do not support hydric vegetation, are not connected to a stream system in the watershed and retain irrigation water on-site, they are not considered features that would be normally regulated under FGC Section 1600 et seq. Further, none of these remnant irrigation swales provides any wildlife value since their purpose was limited to conveying irrigation water to the remnant orchards onsite during the growing season. They lack any riparian or emergent vegetation, appear to be highly maintained, and appear to be reconstructed seasonally based on agricultural needs. Based on these site conditions, there is no apparent need to file a Lake or Streambed Notification with CDFW under FGC.



Path: U:\GIS\GIS\Projects\17xxxx\D170464 - Lendlease Solar\Figure 1 Project_Vicinity.mxd, rt 10/13/2017

SOURCE:ESRI Imagery; ESA

Lendlease Solar

Figure 1
Project Location

ESA

Appendix E

Phase I Environmental Site Assessment

ESA

Final

DEER CREEK SOLAR I PROJECT

Phase I Environmental Site Assessment

Prepared for
Deer Creek Solar I LLC

July 2018

ESA

Final

DEER CREEK SOLAR I PROJECT

Phase I Environmental Site Assessment

Prepared for
Deer Creek Solar I LLC

July 2018

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Deer Creek Solar I Project Phase I Environmental Site Assessment

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Section 1
Executive Summary

ESA compiled this Executive Summary using excerpts from the Phase I Environmental Site Assessment report that follows. This Executive Summary may not provide all the information necessary to fully characterize the site and gain an understanding of the issues nor does it detail the Phase I assessment and its findings. ESA does not recommend sole reliance on this Executive Summary.

This Phase I Environmental Site Assessment was conducted on behalf of Deer Creek Solar, LLC for the Deer Creek Solar I Project site on Assessor Parcel Numbers (APNs) 302-230-013-000 (221.9 acres) and 302-460-003-000 (155.9 acres) (Project site) in rural Tulare County, California one mile northwest of Terra Bella, adjacent to State Highway 65 and approximately 1,000 feet south Deer Creek (see **Figure 1** and **Figure 2**). This report was prepared in general accordance with guidance from the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-13).

The site is undeveloped agricultural land with agricultural fields and an abandoned orchard. The study area includes paved right-of-ways in Terra Bella Avenue, Road 224, and Road 232. The regulatory and historic records search, site reconnaissance, and interview identified Recognized Environmental Conditions (RECs), as listed below. This report should be read in its entirety for a comprehensive understanding of the project site conditions described.

- The above-ground storage tank (AST) at Location 1.2 within Area 1, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.

- The AST at Location 1.3 within Area 1, also exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, as discussed above, there is potential for subsurface contamination around the AST, and thus, the AST site is a possible REC.

- The diesel motor at Location 1.3 within Area 1, lies upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the diesel motor, migrated off the concrete pad and onto adjacent undeveloped land. Fluid was seen actively leaking from the diesel engine structure.

Therefore, there is potential for subsurface contamination at Location 1.3 and the diesel motor structure is considered a REC.

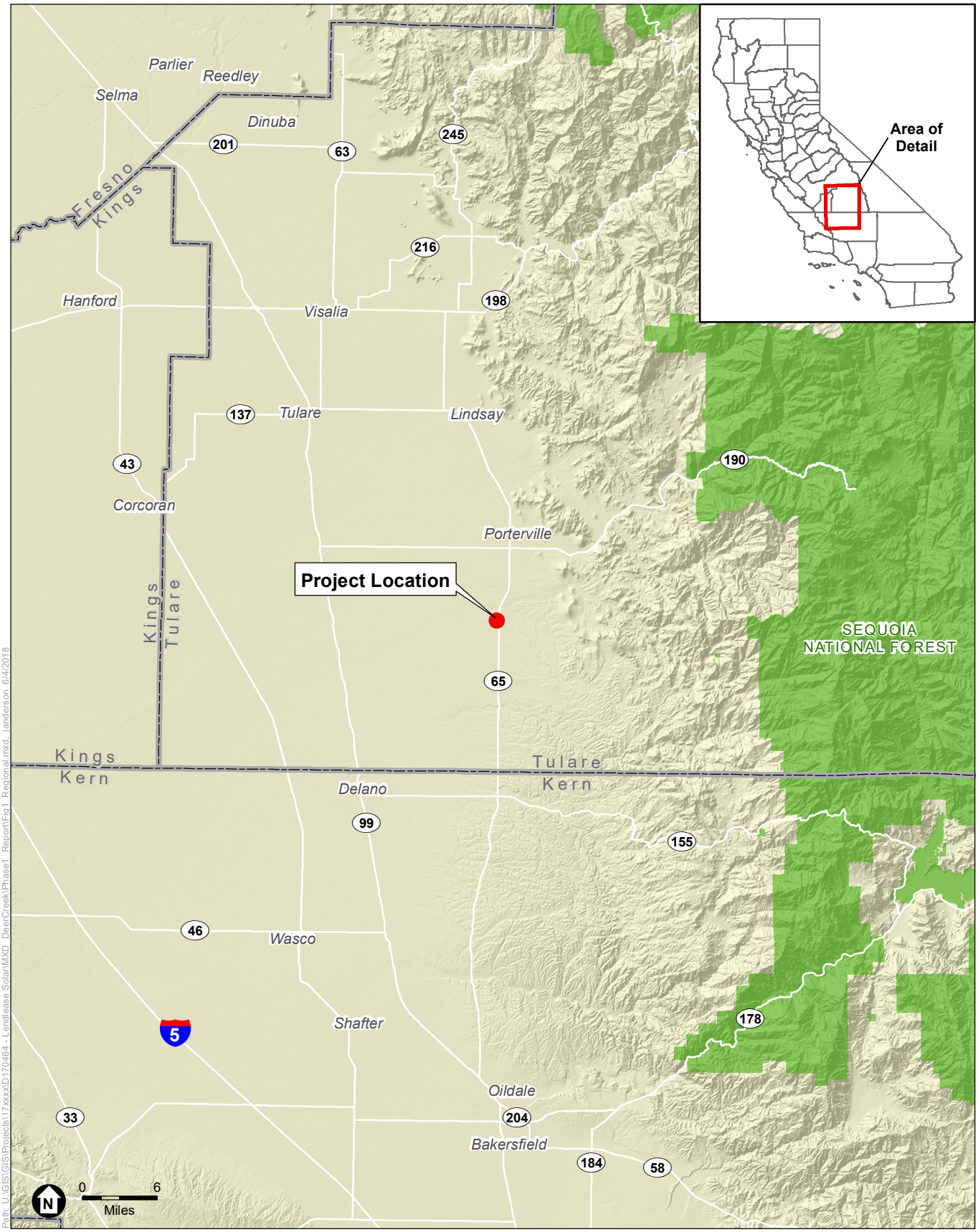
- The nine buckets observed at Location 1.3 in Area 1 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

- The AST at Location 2.2 within Area 2, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.

- The motor and electric pumping system at Location 2.2, lie upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the motor and pumping system, migrated off the concrete pad and onto adjacent undeveloped land. Therefore, there is potential for subsurface contamination at Location 2.2 and the diesel motor structure is a possible REC.

- The two buckets observed at Location 2.2 in Area 2 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

- The project site supported historic agricultural uses. Based on the historical agricultural use of the project site, residual pesticide concentrations in the surface and subsurface soils could be of concern.

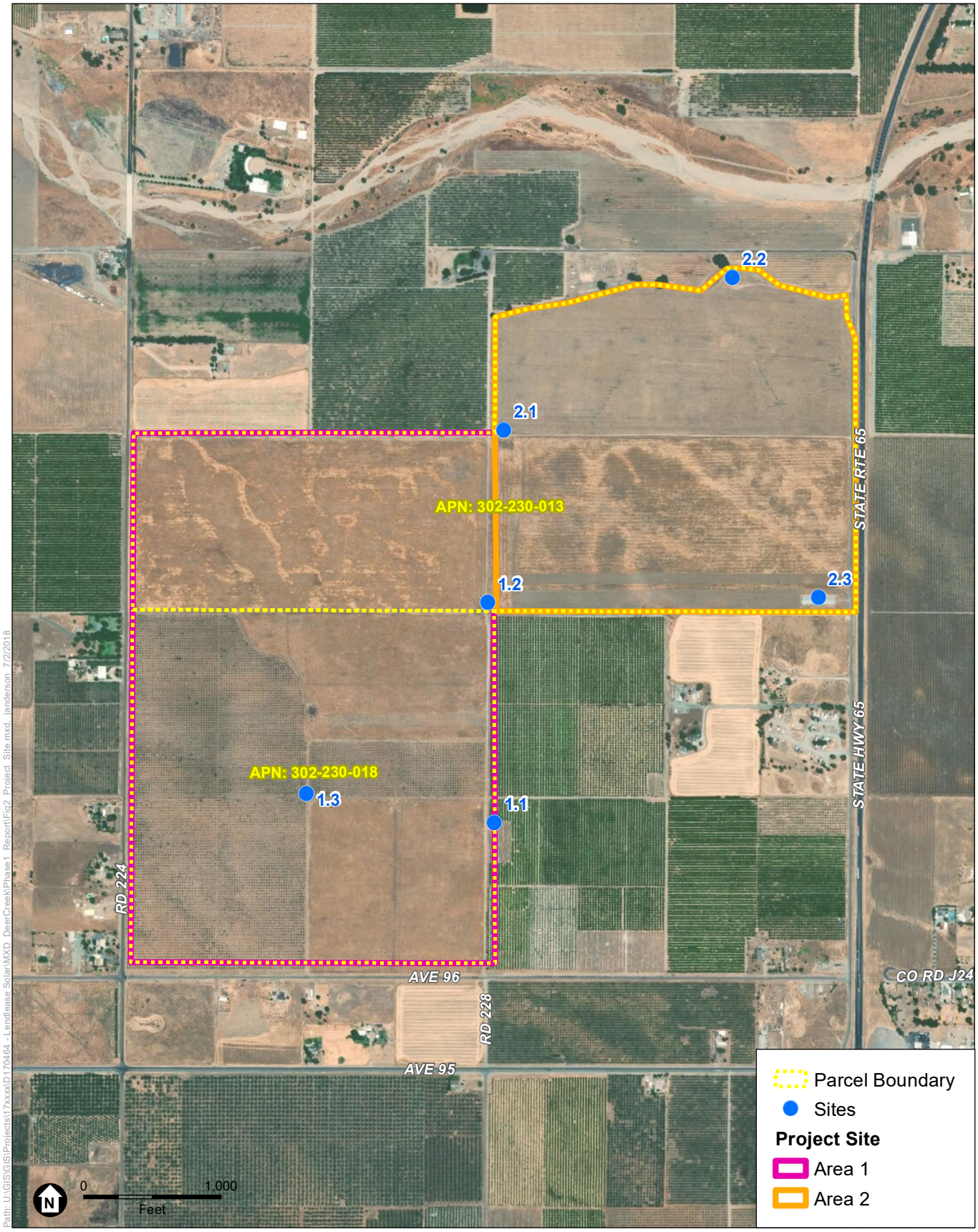


SOURCE: ESRI

Deer Creek Solar Project

Figure 1
Regional Location

ESA



SOURCE: Tulare County; ESRI

Deer Creek Solar Project

Figure 2
Project Site

ESA

Section 2
Introduction

2.1 Purpose, Standards, and Definitions

Environmental Science Associates (ESA) was retained to conduct a Phase I Environmental Site Assessment for two contiguous parcels (377.8 acres) in Tulare County, California (see **Figure 1, Regional Location Map** and **Figure 2, Project Site**). The proposed project is bounded by Avenue 96 on the south, Road 224 to the west, and State Route (SR) 65/CR35 on the east. The project site is within a portion of Section 33, T22S, R27E, MDBM. The unincorporated community of Terra Bella is approximately ½ mile east of the project site.

This Phase I assessment was conducted in general accordance with the American Society of Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-13) and the U.S. Environmental Protection Agency (US EPA) Final Rule regarding Standards and Practices for All Appropriate Inquiries as published in the Federal Register on November 1, 2005 (70 FR 66070) and codified at 40 CFR Part 312 (AAI Rule). The US EPA has stated that the newly revised ASTM E1527-13 is consistent with the AAI rule (78 FR 79319, December 30, 2013). Specifically, this final rule amends the AAI Rule at 40 CFR Part 312 to reference ASTM E1527-13 and make clear that persons conducting all appropriate inquiries may use the procedures included in this standard to comply with the AAI Rule.

The purpose of this Phase I assessment is to enable the parties relying on it to satisfy one or more of the requirements for the innocent landholder defense to liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and to evaluate the potential for Recognized Environmental Conditions (RECs) at the project site. Three types of RECs are defined by the ASTM E1527-13, as listed below. The term Recognized Environmental Conditions (REC) means:

> *"The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."*

In addition, the updated ASTM E1527-13 defined the two additional categories cited below.

The term Historical Recognized Environmental Conditions (HREC) means:

> *"A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition."*

For a past REC to be considered an HREC it must:

- Have already been remediated (or meet current standards without remediation);
- Not require use restrictions or engineering controls (e.g., cap, subslab depressurization system, etc.); and
- Meet current standards.

If the REC has use restrictions or engineering controls (e.g., cap, subslab depressurization system, etc.), then the REC may be designated as a Controlled Recognized Environmental Condition (CREC), as defined below. Unlike HRECs, a CREC will be listed in the conclusions section of the Phase I assessment, along with other RECs. The purpose of this new category is to bring continuing obligations such as use restrictions, maintenance requirements, reporting requirements, etc. to the forefront. The term CREC means:

> *"A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report."*

RECs, HRECs, and CRECs are not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 Scope of Services

The following sections describe ESA's work scope:

Section 2*, Introduction*, *Standards*, and *Definitions*, includes a discussion of the purpose for performing the Phase I assessment; the standards and definitions used for the Phase I assessment; and the significant assumptions and limitations.

Section 3*, Site Description*, compiles information concerning the location, legal description, current and proposed use, a description of any structures and improvements at the time of ESA's assessment, and adjoining property use for the parcel.

Section 4, *Records Review*, includes ESA's review of various databases available from the federal, state, and local regulatory agencies regarding hazardous materials use, storage, or disposal at the parcels. Client-provided information is summarized and copies of relevant documents are included in the appendices of this report. Physical setting sources such as topography, soil, and groundwater conditions are described.

Section 5, *Site Reconnaissance*, describes ESA's observations during reconnaissance of the parcels. The methodology used and limiting conditions are described.

Section 6, *Interviews and User Provided Information*, summarizes telephone and personal interviews conducted with Todd Jensen.

Section 7, *Findings and Opinions*, presents ESA's findings and professional opinions regarding the information contained in this report. It provides ESA's conclusions regarding the presence of RECs connected with the parcels and data gaps, if any, that could affect the recognition of RECs.

Section 8, *Report Authors and Qualifications*, provides the signatures and qualifications of the report authors.

Section 9, *References*, is a summary of the resources used to compile this report that are not already included in the Appendices.

The appendices contain certain pertinent documentation regarding the parcels. Appendices A, B, and C contain the regulatory agency database search results report; historical aerial photographs, topographic maps, Sanborn insurance map and city directory search results; and the interview questionnaires, respectively.

2.3 Limitations and Exceptions

No environmental site assessment can wholly eliminate uncertainty regarding the potential for RECs, HRECs, and CRECs in connection with a property. Conformance of this Phase I assessment with ASTM E1527-13 reduces, but does not eliminate, uncertainty regarding the potential for RECs, HRECs, and CRECs in connection with the subject property. While ESA has made every effort to discover and interpret available historical and current information on the properties within the time available, some potential always remains for undiscovered contamination to be present. ESA's report is a best-efforts collection and interpretation of available information, and cannot be considered wholly conclusive. This report and the associated work were provided in accordance with the principles and practices generally employed by the local environmental consulting profession. This is in lieu of all warranties, expressed or implied. No other warranty is expressed or implied. ASTM E1527-13 is included in this report by reference.

This Phase I assessment is based primarily on historical research, a database review, and a site reconnaissance of accessible areas. This Phase I assessment does not include "non-scope issues" as specified by ASTM E1527-13, such as surveys for the presence of the following items on or in the vicinity of the subject property: asbestos-containing materials (ACMs), poly-chlorinated biphenyls (PCBs), radon, indoor air quality, lead-based paint analysis, lead in drinking water, industrial hygiene, health and safety, regulatory compliance, and high voltage lines.

The conclusions presented are professional opinions based solely upon indicated data described in this report, visual site and vicinity observations, and the interpretation of the available historical information and documents reviewed, as described in this report. Unless ESA has actual knowledge to the contrary, information obtained from interviews or provided to ESA is assumed to be correct and complete. ESA does not assume any liability for information that was misrepresented to ESA by others or for items not visible, accessible, or present on the parcels during the time of the site reconnaissance. The conclusions are intended exclusively for the purpose outlined herein and the site location indicated. Any use or reuse of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of the user.

Opinions and recommendations presented herein apply to the site conditions existing at the time of this Phase I assessment and cannot necessarily apply to site changes of which ESA is not aware and has not had the opportunity to evaluate. Changes in the conditions of the parcels may occur with time due to natural processes or the works of man on the property or adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond ESA's control. Opinions and judgments expressed herein are based on ESA's understanding and interpretation of current regulatory standards, and should not be construed as legal opinions.

Section 3
Site Description

3.1 General Setting and Location

The project site consists of two contiguous parcels APNs 302-230-013-000 (221.9 acres) and 302-460-003-000 (155.9 acres) totaling 377.8 acres. The project site is located in Tulare County, California (see **Figure 1, Regional Location Map** and **Figure 2, Project Site**). The project site is bounded by Avenue 96 on the south, Road 224 to the west, and SR 65/CR35 on the east. The project site is within a portion of Section 33, T22S, R27E, MDBM. The unincorporated community of Terra Bella is approximately ½ mile east of the project site. The site is undeveloped agricultural land with agricultural fields and an abandoned orchard. Access to the site is from Road 224, which runs along the western border of the project site or Avenue 96 which borders the project site on the south.

Surrounding land uses include farmland and rural residential. Deer Creek is located 500 to 2,000 feet to the north of the project site depending on which section of the northern boundary the distance is calculated. The project site is generally flat.

For the purposes of this analysis, the parcels are described by two distinct areas: Area 1 and Area 2 (see **Figure 2, Project Site**). Viewpoints of the study areas are depicted in **Figure 3** and **Figure 4**, below.

3.2 Current and Proposed Land Uses

As described in Section 3.1 above, the project site supports agricultural uses such as fields and orchards. The project site is designated as Valley Agriculture under the Tulare County General Plan. The types of uses typically allowed include irrigated crop production, orchards and vineyards; livestock; resource extraction activities and facilities that directly support agricultural operations, such as processing; and other necessary public utility and safety facilities" (County of Tulare, 2012).

The two parcels within the project site are zoned AE10 "Exclusive Agriculture 10 Acre Minimum" and AE 40 "Exclusive Agriculture 40 Acre Minimum (Tulare County Zoning). These zoning districts are exclusive zones for intensive agricultural uses and for those uses which are a necessary and integral part of the agricultural operation. These zoning ordinances require that a Special Use Permit be obtained prior to the establishment of non-agricultural uses on agriculturally zoned lands.

The proposed project ("Deer Creek Solar I") includes the development of a photovoltaic energy generation facility up to 70 MW in size, battery energy storage system and associated infrastructure on the site described above. The proposed solar facilities are intended to operate year-round, and would generate electricity during daylight hours. The proposed battery energy storage facilities would augment energy delivery as needed to meet peak demands.

The proposed project would transmit the power generated via a new on-site project substation and SCE substation which would connect over approximately 60 feet to SCE's 66kV Poplar-Terra Bella line. The project would require a Special Use Permit by the County of Tulare.

The Tulare County Board of Supervisors (BOS) has adopted a number of resolution actions that allow photovoltaic facilities in designated agricultural lands. The following resolutions permit photovoltaic facilities on designated agricultural lands given the Project applicant obtains a Special Use Permit and meets the application requirements: Resolution No. 89-1275 Uniform Rules for Agricultural Preserves, Resolution No. 99-0620 Establishing Rules on Farmland Security Zones, Resolution No. 2010- 0458- Interpretation to the Tulare County Zoning Ordinance No. 352 for Solar and Wind Electrical Generation Facilities County Wide, Resolution No. 2010- 0590- Amendment to Resolution and Interpretation to the Tulare County Zoning Ordinance No. 352, Resolution No. 2010-0591 Compatibility for Public and Private Utility Structures Located on Agricultural Zoned Lands and Lands Under Williamson Act Contracts, Resolution No. 2010-0717 Establishing Criteria for Public and Private Utility Structures Proposed on Agricultural zone Lands and Lands Under Williamson Act Contracts, and Resolution No. 2013-0104 Recommendation From the Agricultural Policy Advisor Committee Regarding Siting of Utility Scale Solar Facilities.

Through the approval of a Special Use Permit, the proposed Project would be consistent with agricultural zoning designations. The Project would not conflict with existing land use designations/zoning and will comply with the guidelines and policies set forth in the Tulare County General Plan, Tulare County Code, and BOS Resolutions which govern the approval of solar facilities. The Project would be compatible with all relevant land use plans, policies, and regulations.

PHOTOGRAPH 1: View looking east from Area 1

PHOTOGRAPH 2: View looking north from Area 1

PHOTOGRAPH 3: View looking south from Area 1

PHOTOGRAPH 4: View looking west from Area 1

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 3
View Photographs of Area 1

ESA

PHOTOGRAPH 5: View looking east from Area 2

PHOTOGRAPH 6: View looking north from Area 2

PHOTOGRAPH 7: View looking south from Area 2

PHOTOGRAPH 8: View looking west from Area 2

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 4
View Photographs of Area 2

ESA

Section 4
Records Review

The purpose of the records review is to obtain and examine records that could help to evaluate potential RECs, HRECs, and CRECs in connection with the parcel. This section documents the database records search, the evaluation of other records, summarizes information provided by the property owners, and describes the physical setting of the parcel.

4.1 Standard Environmental Record Sources

Federal, state, and local regulatory agencies publish databases of businesses and properties that handle hazardous materials or hazardous waste, including those properties with a known release of hazardous substances to soil and/or groundwater. These databases are available for review and/or purchase at the regulatory agencies, or the information may be obtained through a commercial database service. ESA contracted with a commercial database service, GeoSearch, to perform the government database search for listings within the appropriate ASTM Standard minimum search distance. The GeoSearch database search sources are summarized on **Table 4-1**. A detailed description of the types of information contained in each of the databases reviewed and the agency responsible for compiling the data is included in the GeoSearch Radius Report provided as Appendix A. A list of acronyms for the individual databases is presented in the Database Summary of the GeoSearch Radius Report.

ESA evaluated the listings with regard to the nature of potential chemicals of concern, the extent of known releases, and the physical setting of the parcels (e.g., soil properties, geology, and seismicity). In general, reported or potential releases likely to affect a property would include those located on or within 1/8-mile radius of the parcels. ESA also considered additional factors such as chemical properties, regional knowledge of the site vicinity, anticipated groundwater flow direction, and available past regulatory documentation as part of the REC evaluation.

4.2 Results of Database Search

The project site was not listed on any federal, state, or local regulatory agency databases. Closed (already cleaned up) sites within the search radius and operating sites with no records of releases or use violations were not considered since they would not pose a risk to the parcels. The following **Table 4-1** summarizes the searched regulatory records.

TABLE 4-1
REGULATORY RECORDS REVIEW SEARCH SOURCES

Federal

- Emergency Response Notification System (ERNS)
- Federal Institutional or Engineering Controls Registries (EC)
- Land Use Control Information System (LUCIS)
- Resource Conservation Recovery Act (RCRA) Sites with Controls
- RCRA-Generators List
- RCRA – Non-Generator
- FEMA Owned Storage Tanks
- Brownfields Management System
- Delisted National Priorities List
- No longer regulated RCRA Non-CORRACTS (Corrective Action Report) – Treatment, Storage, or Disposal Facility (TSDF)
- No longer regulated RCRA Corrective Action Faculties
- Superfund Enterprise Management System
- Superfund Enterprise Management System Archived Site Inventory
- US EPA National Priority List (NPL), proposed NPL, and Delisted NPL Site List
- RCRA Corrective Action Facilities
- RCRA Subject to Corrective Action Facilities

State/Local

- DTSC Deed Restrictions
- Above Ground Storage Tanks
- Historic Underground Storage Tank
- Statewide Environmental Evaluation and Planning System
- Underground Storage Tanks
- Brownfield Sites
- CALSITES Database
- GEOTRACKER Cleanup Sites
- Leaking Underground Storage Tanks
- Solid Waste Information System Sites
- Voluntary Cleanup Program
- Envirostor Cleanup Sites
- State and tribal registered storage tank lists
- EnviroStor Permitted and Corrective Action Sites

Project Site

According to the GeoSearch Radius Report (GeoSearch, 2018a), the project site is not identified on any federal, state, or local databases.

Surrounding Properties

According to the GeoSearch Radius Report (GeoSearch, 2018a), there are four sites within 1-mile that are listed on databases. The list below provides the site name, address, location relative to the project site, and environmental conditions.

Frank L. Mariani Site, 22648 Avenue 95, Terra Bella, CA.

This site is located about 0.80-mile south of the project site. This site is upgradient from the project site. A leaking underground storage tank (LUST) was detected in 1990 that impacted soil around the LUST with total petroleum hydrocarbons. The site was cleaned up and maintains a closed-no further action status as of November 2010. This site would not be able to affect the subject parcels.

Terra Bella Mobile Station, 23171 Avenue 96, Terra Bella, CA.

This site is located about 0.40-mile east of the project site. This site is upgradient from the project site. Multiple property transfers have occurred since 1960s. A Mobil Gas Distributor leased the site and installed all underground storage tanks, oil tank, pumps, etc. for the operation of a Mobil Gas Station. Upon termination of the lease, the tank operator removed all of the gasoline tanks in March 1986. Tank removal sampling analysis indicated significant hydrocarbon contamination. A waste oil tank was removed in 1988 and no significant oil contamination was discovered. An unauthorized release report form was completed June 10, 1988. Limited site assessment was conducted in October 1993. UST Claim Application was received March 24, 1998. UST Claim Application was rejected by Staff Decision on April 7, 1998 and again by the UST Cleanup Fund Program, Program Manager on May 5, 1998. The property was sold to Genoveva Hernandez, current owner of record with a date of transfer March 20, 2001. The current owner has failed to respond to all attempts to perform corrective action to investigate the effects of the release and to implement a cost effective plan to protect human health, safety and the environment. The site status remains opened as of 1993. However, given the age and magnitude of release, it is likely that much of the contamination has attenuated and thus, the site would not be considered a REC to the project site. Furthermore, given the distance of the release the site would not be considered a REC to the project site.

Terra Bella Plastics, 10513 Road 236, Terra Bella, CA

This site is located about 0.42-mile east northeast of the project site. It is located upgradient from the project site. This site was referred to the Regional Water Quality Control Board (RWQCB) as of January 15, 1992. The solar panel and plastic container manufacturing facility is believed to be the cause of potential contamination. During a facility drive-by, the regulators noted plastic debris on the west side of a building, five ponds on the west side of the building, pickling tanks, and

unlabeled barrels, acid and lacquer barrels. No additional information is available. It is not likely that this site is considered a REC to the project site due to its distance from the project site.

Tri-County Ag Chem Inc, 23311 Avenue 95m Terra Bella, CA

This site is located about 0.78-mile east southeast from the project site. The site is considered a historic site. This designation refers to sites from an older database where no site type was identified. Most of these sites have a status of referred or no further action. The Department of Toxic Substances Control (DTSC) is sorting through this data by identifying an appropriate site type for each "historic" site. This site is not expected to impact the project site due to its distance from the project site.

4.3 Other Records Reviewed

ESA accessed the State Water Resources Control Board (SWRCB) GeoTracker and the DTSC's EnviroStor websites to search for other possible site listings to update information from the GeoSearch report. No other sites within the search distances were identified. The GeoSearch regulatory agency records search also provides historical aerial photographs, historical topographic maps, fire insurance maps, and city directories for review. The results of the review of these other records are discussed further below.

Historical Aerial Photographs. GeoSearch provided historical aerial photographs for the years 1937, 1952, 1956,1961, 1969, 1977, 1984, 1989, 1994, 2003, 2004, 2005, 2006, 2009, 2010, 2012, 2014, and 2016. These photographs are included in Appendix B of this report.

The 1937 aerial photograph shows the parcel and surrounding area as mostly undeveloped. Crops are shown in areas surrounding the parcel. The aerial also shows dirt roads in the vicinity.

The 1952 aerial photograph depicts the parcel being utilized for row crops and agricultural uses. The parcel remains undeveloped and the surrounding area remains unchanged.

The parcel remains unchanged in the 1956 aerial photograph. A small structure is apparent just north of the parcel. Minimal agricultural development can be seen southeast of the parcel.

The 1961 aerial is or poorer quality and makes the details obscure. The parcel and surrounding area remain unchanged in the 1961 aerial photograph.

The parcel and surrounding area remain unchanged in the 1969 and 1977 aerial photographs.

The 1984 aerial photograph shows the parcel as being developed with its current barn structure in the southeastern corner of Area 2. The surrounding area is slightly more developed with scattered structures and agricultural uses.

The parcel and surrounding area remain unchanged in the 1989, 1994, 2003, and 2004 aerial photographs.

In the 2005 aerial photograph, fertilizer and irrigation conveyance systems are apparent throughout the parcel. The surrounding area is slightly more developed. Otherwise, the parcel and surrounding area remain unchanged.

The parcel and surrounding area remain unchanged in the 2006, 2009, 2010, 2012, 2014, and 2016 aerial photographs.

Historical Topographic Maps. GeoSearch provided historical topographic maps for the years 1927, 1942, 1952, 1969, and 2012. These maps are included in Appendix B of this report.

The 1927 Ducor, CA 1:2,640 topographic map shows the parcel as undeveloped. The historic Pacific Highway (now Road 236) is shown in its current location east of the parcel. The town of Terra Bella is depicted as being developed and is apprant east of the parcel.

The 1942 Terra Bella, CA 1:5,208 topographic map shows the parcel as undeveloped. Two pumping stations are labelled to the northwest and to the northeast of the parcel. Terra Bella – located southeast of the parcel – and the town of Ducor – located south of Terra Bella – are shown in the 1942 map. The Atchison Topeka and Santa Fe railroad is identified to the southeast of the parcel.

The 1952 Ducor, CA 1:2,000 topographic map shows the parcel and surrounding areas as unchanged from the 1942 topographic map.

The 1969 Ducor, CA 1:2,000 topographic map shows the parcel as unchanged from the 1952 topographic map. The present-day California State Route 65 is depicted east of- and adjacent to-the parcel.

The 2012 Ducor, CA 1:2,000 topographic map shows the parcel as undeveloped. A more robust road grid is apparent surrounding the parcel and, otherwise, the surrounding area remains unchanged from the 1969 topographic map.

Oil and Gas Well Information. The project site is located on the Deer Creek oil and gas field (California Department of Conservation, 2018). One plugged and abandoned oil and gas well is located on the northeast portion of the project site (APN 302-230-013-000). Additionally, 19 oil and gas wells were identified within ½-mile of the project site. Of these 19 oil and gas wells, 4 are active and 15 are plugged and abandoned. A full list of the wells and well details is located in Appendix C of this Phase I ESA (GeoSearch, 2018d, e, Appendix C). The nearest active oil and gas well is located 333 feet south of the project site. The other three active well sites are located about 0.50-mile northeast of the project site. Based on a review of the National Pipeline Mapping System (NPMS) Public Viewer accessed on June 28, 2018 (NPMS, 2018), there are no reported liquid accidents or reported gas incidents on the project site or immediately adjacent to the project site.

Fire Insurance Maps. GeoSearch searched the Library of Congress, University Publications of America, and other map libraries for fire insurance maps. No fire insurance maps were found covering the parcels, as noted in Appendix B (GeoSearch, 2018c).

City Directories. GeoSearch provided city directories which include the name of the site owner of the site and surrounding properties; these are included in Appendix B. The names of the properties were checked for indications of site use with a focus on the use of hazardous materials. The majority of the listings are the names of individuals, which would not indicate site use. Several properties are listed as being associated with agricultural uses. Further, based on a review of historic aerials and photos, the surrounding properties were used for agricultural uses and then developed for residential.

4.4 Physical Setting

The following sections provide information about the physical setting of the parcels obtained from published reports and maps, as referenced. Geotechnical information is not a required element of ASTM E1527-13 Phase I assessments, and is not included in this Phase I assessment.

Topography. The overall topographic relief is relatively flat across both parcels. The project site elevation is about 454 feet above sea level.

Geology, Soils, and Hydrology. The site is on Quaternary alluvium and marine deposits from the uplift of the Sierra Nevada mountains. These rocks date from recent back to the Pliocene (up to 5.3 million years ago).

No Alquist-Priolo fault zones pass through the parcels. The closest known faults or fault systems to the Project site are the Poso Creek fault approximately 23.0 miles southwest and the Kern County fault system approximately 34.0 miles to the east (USGS, 2017).

The soil on the project site is comprised of Centerville Clay, Nord fine sandy loam, Yettem sandy loam, and San Joaquin Loam. Surface water flow is generally to the north toward Deer Creek Ditch.

Data from the California Department of Water Resources Data Library indicates that the groundwater level for the wells near the project site is approximately 200 to 400 feet below the surface (DWR, 2017). Groundwater is not expected to be encountered during construction activities.

Flood Zone Designation. The parcel is not located within the 100-year flood zone (GeoSearch, 2018f).

Section 5
Site Reconnaissance

5.1 Methodology and Limiting Conditions

Aaron Weiner from ESA conducted the site reconnaissance on May 7, 2018, to assess present conditions. Weather at the time of the site inspection was sunny and warm. The site conditions discussed below are limited to readily apparent environmental conditions observed.

5.2 General Site Setting

The study area is located one mile northwest of Terra Bella, adjacent to State Highway 65, and approximately 1,000 feet south of Deer Creek. Surrounding land uses include farmland and rural residential. State Highway 99 is 12.5 miles to the west, State Highway 65 is across Road 232 from the site, and several rural residential properties in Terra Bella surround the site. Agricultural land types observed during site reconnaissance included harvested field crops, orchards, and vineyards. The elevations on the site do not vary significantly and the parcels can generally be described as flat. For the purposes of this analysis, the parcels are described by two distinct areas: Area 1 and Area 2 (see **Figure 2, Project Site**). Both areas consist of entirely disturbed and undeveloped agricultural land and include bare tilled ground, dirt roads, unvegetated and vegetated agricultural ditches.

5.3 Site Observations

The site observations discussed below are organized by the predefined Areas and Sites. **Figure 2** shows the locations of the distinct Areas and Sites.

Area 1 (Proposed Solar Field)

Area 1 covers approximately 246 acres and is bordered by Road 224 to the west, East Terra Bella Avenue to the south, Area 2 and agricultural uses to the west, and agricultural uses to the north. The Area is currently covered with cultivated or abandoned agricultural land, developed areas, bare soil, and isolated irrigation ditches excavated in dry land. No permanent structures are present within Area 1. In addition, disconnected subterranean pipes likely used for irrigation liquid transfer from an unknown source, were scattered at various locations across Area 1 (see **Figure 5**). Furthermore, abandoned agricultural irrigation wheel systems are located across Area 1 and include the following components: irrigation wheel system motors, disconnected irrigation

lines, and irrigation wheels (see **Figure 5**). No evidence of leaks, spills, or staining were observed in the vicinity of Area 1's agricultural irrigation wheel systems.

Location 1.1

Approximately 1,000 feet north of Terra Bella Avenue on the western border of Area 1 ("Location 1.1"), a storage silo was observed with unknown contents. Connected to the silo is an electric motor placed on a concrete pad, with no apparent cracks, or faults (see **Figure 5**). The storage silo was not located on a concrete pad, but no evidence of spills, leaks, or staining was observed in the area surrounding either the motor, or the silo.

Location 1.2

Approximately 0.5 miles north of Terra Bella Avenue on the western boundary of Area 1 ("Location 1.2"), a fertilizer conveyance system is installed, along with an above ground storage tank (AST), an electric motor, and an empty 55-gallon barrel (see **Figure 6**).

- The fertilizer conveyance system ("Ag Solution Master") is not located on a concrete pad and uses machine lubrication for operation. However, no evidence of spills, leaks, or staining was observed near the Ag Solution Master.
- The above ground storage tank is unmarked. The AST is located on a concrete pad and evidence of leakage and staining is apparent on the concrete surface. Furthermore, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto unpaved soil. Therefore, there is potential for subsurface soil, or groundwater, intrusion by hazardous liquids currently stored onsite.
- The electrical motor is also located on a concrete pad. Evidence of staining was observed beneath the motor structure; however, the staining pattern indicates that the leaked fluid has not migrated off the concrete pad. Furthermore, no cracks or faults were seen in the concrete pad.
- The 55-gallon barrel is unmarked and empty. The barrel is not located on a concrete pad; however, no evidence of spills, leaks, or staining was observed around the barrel's location.

Location 1.3

Approximately 1,300 feet north of Terra Bella Avenue and at the lateral midpoint of Area 1 ("Location 1.3"), an AST, a diesel engine, and approximately nine empty buckets – with potentially hazardous liquid contents – were observed (see **Figure 7**).

- The AST is marked as containing diesel fuel. The AST is located on a concrete pad and evidence of leakage and staining is apparent on the concrete surface. Furthermore, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater, intrusion by hazardous liquids currently stored onsite.

PHOTOGRAPH 1: Disconnected subterranean pipes

PHOTOGRAPH 2: View of abandoned agricultural irrigation wheels

PHOTOGRAPH 3: View looking west towards storage silo

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 5
Site Photographs of Area 1

ESA

PHOTOGRAPH 4: View of electrical motor

PHOTOGRAPH 5: View of Ag Master fertilizer conveyance system

PHOTOGRAPH 6: Abandoned AST

PHOTOGRAPH 7: View of electric motor and empty 55-gallon barrel

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 6
Site Photographs of Area 1

ESA

PHOTOGRAPH 8: View of Diesel AST, diesel engine, and nine empty buckets

PHOTOGRAPH 9: View of AST

PHOTOGRAPH 10: Diesel Motor and leakage

PHOTOGRAPH 11: Eight out of nine observed buckets

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 7
Site Photographs of Area 1

ESA

- The diesel motor is also located on a concrete pad with no apparent cracks or faulting. Evidence of staining was observed beneath the motor structure, and the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Furthermore, liquid was seen actively leaking from the diesel engine structure.
- Nine buckets, filled with a black sludge-like liquid, were observed adjacent to the AST and diesel engine. The composition of the black sludge-like liquid is unknown; however, overflow caused by precipitation events introduces the potential for subsurface soil, or groundwater intrusion by the potentially hazardous black liquid.

Area 2 (Proposed Solar Field)

Area 2 covers approximately 142 acres and is bordered by agricultural uses and Area 1 to the west, agricultural uses to the south, State Highway 65 to the east, and agricultural uses to the north (see **Figure 2**). The Area is currently covered with cultivated or abandoned agricultural land, developed areas, bare soil, and isolated irrigation ditches excavated in dry land. One permanent structure – an open-air barn shade – is located within Area 2 and is surrounded by a chain link fence. At the time of site reconnaissance, the chain link fence was secured with a lock and the barn shade was inaccessible. Similar to Area 1, Area 2 contains disconnected subterranean pipes likely used for irrigation liquid transfer from an unknown source, were scattered at various locations. Additionally, abandoned agricultural irrigation wheel systems are located across Area 2 and include the following components: irrigation wheel system motors, disconnected irrigation lines, and irrigation wheels. No evidence of leaks, spills, or staining were observed in the vicinity of Area 2's agricultural irrigation wheel systems.

Location 2.1

Adjacent to the northeastern-most corner of Area 1 ("Location 2.1"), a motor, an electric engine, a 30-gallon AST, and various other agricultural debris were observed (see **Figure 8**).

- The 30-gallon AST is partially located on a concrete pad, and is labelled for oil storage. The AST historically supplied fuel to the adjacent motor and its current contents are unknown. Some light staining was observed on the concrete pad, but no cracks or faulting were apparent at the time of site reconnaissance.
- The motor and electric engine are located on the same concrete pad. As stated above, some light staining was observed on the concrete pad, but no cracks or faulting were apparent at the time of site reconnaissance. Furthermore, the staining pattern indicates that the leaked fluid has not migrated off the concrete pad.

Location 2.2

Approximately 950 feet west of State Highway 65 ("Location 2.2"), a second fertilizer conveyance system is installed, along with an AST, a motor, and an electric pumping system. Two buckets – with potentially hazardous liquid contents – were observed immediately next to the electric pumping system (see **Figure 8** and **Figure 9**).

PHOTOGRAPH 12: View of 30-gallon AST

PHOTOGRAPH 13: View of motor and electric engine

PHOTOGRAPH 14: View of AST

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 8
Site Photographs of Area 2

ESA

- The Ag Solution Master is not located on a concrete pad and utilizes mechanical lubrication for operation. However, no evidence of spills, leaks, or staining was observed near the Ag Solution Master.
- The above ground storage tank is unmarked. The AST is located on a concrete pad and evidence of leakage and staining is apparent on the concrete surface. Furthermore, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater, intrusion by hazardous liquids currently stored onsite.
- The motor and electric pumping system are located on the same concrete pad, with no apparent cracks, or faulting. Evidence of leakage and/or spillage was observed surrounding the concrete pad, indicating that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater intrusion by hazardous liquids currently stored onsite.
- Two buckets, filled with a black sludge-like liquid, were observed adjacent to the AST and electric pumping system. The composition of the black sludge-like liquid is unknown; however, overflow caused by precipitation events introduces the potential for subsurface soil and/ or groundwater intrusion by the potentially hazardous black liquid.

Location 2.3

In the southeastern most corner of Area 2 ("Location 2.3"), a barn-shade structure was observed (see **Figure 9**). The area underneath the barn-shade structure houses the following on undeveloped land:

- Two large unmarked AST's;
- One closed storage container;
- Four abandoned tractors;
- Approximately six 55-gallon oil drums;
- One abandoned pickup truck; and
- One abandoned crop transport vehicle.

Access to the barn-shade area was restricted by a locked chain link fence; however, no evidence of spills, leaks, or staining were observed in the surrounding area.

PHOTOGRAPH 15: View of motor and electric pumping system

PHOTOGRAPH 16: Two buckets containing black sludge-like liquid

PHOTOGRAPH 17: View of abandoned tractor stored under barn shade

PHOTOGRAPH 18: View of barn shade and contents stored underneath

D170464.00

SOURCE: ESA, 2018

Deer Creek-Tulare

Figure 9
Site Photographs of Area 2

ESA

Right-of-Way

The study area includes about 8,712 linear feet within right-of-way in Terra Bella Avenue, Road 224, and Road 232. Terra Bella Avenue, Road 224, and Road 232 are paved. A utility power line supported by wooden utility poles crosses the project site from north to south. Three of these utility poles had pole-mounted transformers. No evidence of leaks, or staining was observed in the area surrounding the pole-mounted transformers.

5.4 Results of the Site Reconnaissance

At Area 1, the site reconnaissance revealed the following RECs:

- The AST at Location 1.2 within Area 1, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.
- The AST at Location 1.3 within Area 1, also exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, as discussed above, there is potential for subsurface contamination around the AST, and thus, the AST site is a possible REC.
- The diesel motor at Location 1.3 within Area 1, lies upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the diesel motor, migrated off the concrete pad and onto adjacent undeveloped land. Fluid was seen actively leaking from the diesel engine structure. Therefore, there is potential for subsurface contamination at Location 1.3 and the diesel motor structure is considered a REC.
- The nine buckets observed at Location 1.3 in Area 1 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

At Area 2, the site reconnaissance revealed the following Recognized Environmental Conditions:

- The AST at Location 2.2 within Area 2, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.
- The motor and electric pumping system at Location 2.2, lie upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the motor and pumping system, migrated off the concrete pad and onto adjacent undeveloped land. Therefore, there is potential for subsurface contamination at Site 2.2 and the diesel motor structure is a possible REC.
- The two buckets observed at Location 2.2 in Area 2 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events,

would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

Outside of the above listed potential REC's, no evidence of materials or equipment suggesting hazardous materials or waste, discolored soil or water due to chemical spills, stressed vegetation due to chemical spills, above ground or underground storage tanks, pits, ponds, septic systems, or lagoons were observed at Areas 1 and 2 during site reconnaissance.

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Section 6
Interviews and User Provided Information

An interview questionnaire was completed on June 13, 2018, by Todd Jensen. Todd Jensen has been associated with the project site for 28 years. The questionnaire verified many of the observations made while performing site reconnaissance. Mr. Jensen confirmed the project site as being historically and currently used for agricultural uses. Specifically, Mr. Jensen provides details about four ASTs containing up to 2,500 gallons of diesel fuel. Furthermore, the project site includes five batteries on diesel wells and tractors. The tractors were maintained in the barn from 1980 through 2016. The waste oil was transported to a recycle center. One drum containing drip oil is located on the project site for wells. The irrigation pipeline observed on the project site was placed there in the early 1970s. There is a potential for asbestos from the transit pipe. The specific herbicide used at the project site includes Simplicity that was used for the wheat crop. The questionnaire is provided in Appendix D.

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Section 7
Findings and Opinions

7.1 Findings and Opinions

A commercial database service, GeoSearch, provided relevant federal, state, and local regulatory lists for references to the parcels and listings within the appropriate ASTM Standard search distance for our review. Regulatory agency websites were checked to provide additional information about the project site and surrounding area. The project site was not identified on any databases. The surrounding properties that were identified on databases do not constitute a REC for the project site.

The use history of the parcels was reviewed to identify potential RECs, HRECs, or CRECs. The project site has been used to support agricultural uses such as crops and orchards. Pesticides that were historically used are known to have long-lived residues and lasting health and environmental impacts. The pesticides of concern include arsenic, lead and DDT. Based on the historical agricultural use of the project site, residual pesticide concentrations in the surface and subsurface soils could be of concern.

Site reconnaissance was conducted on May 7, 2018. RECs were observed relative to chemical use and storage in Areas 1 and 2.

As discussed in Section 5.3, the site reconnaissance revealed the presence of the following RECs:

- The AST at Location 1.2 within Area 1, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.

- The AST at Location 1.3 within Area 1, also exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, as discussed above, there is potential for subsurface contamination around the AST, and thus, the AST site is a possible REC.

- The diesel motor at Location 1.3 within Area 1, lies upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the diesel motor, migrated off the concrete pad and onto adjacent undeveloped land. Fluid was seen actively leaking from the diesel engine structure. Therefore, there is potential for subsurface contamination at Location 1.3 and the diesel motor structure is considered a REC.

- The nine buckets observed at Location 1.3 in Area 1 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

- The AST at Location 2.2 within Area 2, exhibits evidence of leakage and staining on the concrete surface the AST sits upon. Although no cracks or faulting were observed within the concrete surface, the staining pattern indicates that leaked fluid migrated off the concrete pad and onto undeveloped adjacent land. Therefore, there is potential for subsurface soil, or groundwater contamination around the AST, and thus, the AST site is a possible REC.

- The motor and electric pumping system at Location 2.2, lie upon a concrete slab with no apparent cracks or faulting. However, evidence of staining was observed and the pattern indicates that leaked fluid stemming from the motor and pumping system, migrated off the concrete pad and onto adjacent undeveloped land. Therefore, there is potential for subsurface contamination at Location 2.2 and the diesel motor structure is a possible REC.

- The two buckets observed at Location 2.2 in Area 2 potentially contain hazardous liquid and are not located on a concrete pad. Overflow caused by precipitation, or similar upset events, would introduce the possibility for subsurface contamination and therefore, the buckets present a potential REC.

Based on review of historic sources and the questionnaire, the existing pipeline on the project site may have been in place since the early 1970s. Although it is not considered a REC pursuant to ASTM E 1527-13, structures constructed prior to 1981 may contain asbestos-containing building materials (ACBMs). Based on the age of the onsite pipeline, there is a potential that ACBMs are present onsite. Potential structures with ACBMs should be removed and demolished in accordance with regulatory standards.

This Phase I environmental site assessment was completed in general conformance with the guidelines in ASTM E1527-13.

7.2 Data Gaps

ESA attempted to obtain reasonably ascertainable information regarding the parcels and their surrounding environs. There were no data gaps identified that could affect the identification of RECs, HRECs, or CRECs at the parcels.

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Section 8
Report Authors and Qualifications

Report Authors and Signatures

This section includes qualification statements of the environmental professionals responsible for conducting the Phase I assessment and preparing this report.

Ms. Arabesque Said-Abdelwahed, MPP, of ESA conducted the data review for the project, supervised the site reconnaissance, and prepared the Phase I Environmental Site Assessment report. Ms. Said-Abdelwahed has over eight years of experience in environmental site investigations, characterizations, and assessments, including Phase I Environmental Site Assessments.

The work conducted and the report written by Ms. Said-Abdelwahed was reviewed by Mr. Michael Burns. Mr. Burns has over 30 years of experience in environmental site investigations, characterizations, and assessments, including Environmental Site Assessments.

Ms. Said-Abdelwahed declares that, to the best of her professional knowledge and belief, she meets the definition of Environmental Professional as defined in 40 CFR §312.10. Mr. Burns declares that, to the best of his professional knowledge and belief, he meets the definition of Environmental Professional as defined in 40 CFR §312.10.

Ms. Said-Abdelwahed has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of this property. With the assistance of Mr. Burns, she has developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Principal Analyst/Reviewer:

Arabesque Said-Abdelwahed, MPP

Senior Reviewer:

Michael G. Burns, PG #4532

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Section 9
References

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources Well Finder. Accessed at http://www.conservation.ca.gov/dog/Pages/Wellfinder.aspx Accessed: June 28, 2018.

County of Tulare, 2012. 2030 Update Tulare County General Plan. Accessed at http://generalplan.co.tulare.ca.us/ Accessed: June 7, 2018.

County of Tulare, Need a Map? Zoning. Accessed at http://tularecounty.ca.gov/rma/index.cfm/planning-building/zoning-entitlements/ Accessed: June 29, 2018.

Department of Water Resources (DWR), 2017. Water Data Library, Groundwater Level Reports. Groundwater Level Data for Well 22S27E32F001M and Well 22S27E33P001M. Accessed December 19, 2017.

GeoSearch. 2018a. *Radius Report, Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

_____. 2018b. *GeoSearch Environmental Lien Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

_____. 2018c. *GeoSearch FIM, Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

_____. 2018d. *GeoPlus Oil & Gas Report, Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

_____. 2018e. *GeoPlus Water Well Report, Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

_____. 2018f. *GeoPlus Physical Setting Maps, Deer Creek-Tulare, Terra Bella Avenue, Terra Bella, Tulare County, California 93270, Order #: 109067, May 29.*

United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System (NPMS) Accessed at: https://www.npms.phmsa.dot.gov/ Accessed on June 27, 2018.

United States Geological Survey (USGS), 2017 and 2002. Quaternary Fault and Fold Database of the United States. Available at: http://earthquake.usgs.gov/hazards/qfaults/. Accessed on March 21, 2018.

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Appendix A

GeoSearch Regulatory Records Database Report

GeoSearch
On time. On target. In touch.™

Radius Report

Satellite view

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239873
Project #: D170464.00
Date: 05/29/2018

Table of Contents

Disclaimer

This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquiries Rule (40 CFR §312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal,state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFR §312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.

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Target Property Summary

Target Property Information

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, California 93270

Coordinates
Area centroid (-119.06382, 35.9716319)
454 feet above sea level

USGS Quadrangle
Ducor, CA

Geographic Coverage Information

County/Parish: Tulare (CA)
ZipCode(s):
Porterville CA: 93257
Terra Bella CA: 93270

Database Summary

FEDERAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSCA	0	0	TP/AP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP/AP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP/AP
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR	RCRAGR09	0	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR	RCRANGR09	0	0	0.1250
FEMA OWNED STORAGE TANKS	FEMAUST	0	0	0.2500
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - NON-CORRACTS TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM	SEMS	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM ARCHIVED SITE INVENTORY	SEMSARCH	0	0	0.5000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - SUBJECT TO CORRECTIVE ACTION FACILITIES	RCRASUBC	0	0	1.0000

SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	0	0	TP/AP
BIENNIAL REPORTING SYSTEM	BRS	0	0	TP/AP
CERCLIS LIENS	SFLIENS	0	0	TP/AP
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP/AP
EPA DOCKET DATA	DOCKETS	0	0	TP/AP
ENFORCEMENT AND COMPLIANCE HISTORY INFORMATION	ECHOR09	0	0	TP/AP

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
FACILITY REGISTRY SYSTEM	FRSCA	0	0	TP/AP
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR09	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	0	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP/AP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR09	0	0	TP/AP
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	TP/AP
PERMIT COMPLIANCE SYSTEM	PCSR09	0	0	TP/AP
SEMS LIEN ON PROPERTY	SEMSLIENS	0	0	TP/AP
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP/AP
TOXICS RELEASE INVENTORY	TRI	0	0	TP/AP
ALTERNATIVE FUELING STATIONS	ALTFUELS	0	0	0.2500
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
INTEGRATED COMPLIANCE INFORMATION SYSTEM DRYCLEANERS	ICISCLEANERS	0	0	0.2500
MINE SAFETY AND HEALTH ADMINISTRATION MASTER INDEX FILE	MSHA	0	0	0.2500
MINERAL RESOURCE DATA SYSTEM	MRDS	0	0	0.2500
OPEN DUMP INVENTORY	ODI	0	0	0.5000
SURFACE MINING CONTROL AND RECLAMATION ACT SITES	SMCRA	0	0	0.5000
URANIUM MILL TAILINGS RADIATION CONTROL ACT SITES	USUMTRCA	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMER MILITARY NIKE MISSILE SITES	NMS	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM	FUSRAP	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000

SUB-TOTAL		0	0	

STATE (CA) LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
DTSC DEED RESTRICTIONS	DTSCDR	0	0	TP/AP
ABOVE GROUND STORAGE TANKS	ABST	0	0	0.2500
ABOVEGROUND STORAGE TANKS PRIOR TO JANUARY 2008	AST2007	0	0	0.2500
HISTORICAL UNDERGROUND STORAGE TANKS	HISTUST	0	0	0.2500
STATEWIDE ENVIRONMENTAL EVALUATION AND PLANNING SYSTEM	SWEEPS	0	0	0.2500
UNDERGROUND STORAGE TANKS	USTCUPA	0	0	0.2500
BROWNFIELD SITES	BF	0	0	0.5000
CALSITES DATABASE	CALSITES	1	0	0.5000
GEOTRACKER CLEANUP SITES	CLEANUPSITES	2	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS	LUST	2	0	0.5000
SOLID WASTE INFORMATION SYSTEM SITES	SWIS	0	0	0.5000
VOLUNTARY CLEANUP PROGRAM	VCP	0	0	0.5000
ENVIROSTOR CLEANUP SITES	ENVIROSTOR	2	0	1.0000
ENVIROSTOR PERMITTED AND CORRECTIVE ACTION SITES	ENVIROSTORPCA	0	0	1.0000

SUB-TOTAL		7	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
CALIFORNIA HAZARDOUS MATERIAL INCIDENT REPORT SYSTEM	CHMIRS	0	0	TP/AP
CLANDESTINE DRUG LABS	CDL	0	0	TP/AP
EMISSIONS INVENTORY DATA	EMI	0	0	TP/AP
HAZARDOUS WASTE TANNER SUMMARY	HWTS	0	0	TP/AP
LAND DISPOSAL SITES	LDS	0	0	TP/AP
MILITARY CLEANUP SITES	MCS	0	0	TP/AP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM FACILITIES	NPDES	0	0	TP/AP
RECORDED ENVIRONMENTAL CLEANUP LIENS	LIENS	0	0	TP/AP
CALIFORNIA MEDICAL WASTE MANAGEMENT PROGRAM FACILITY LIST	MWMP	0	0	0.2500
DTSC REGISTERED HAZARDOUS WASTE TRANSPORTERS	DTSCHWT	0	0	0.2500
DRY CLEANER FACILITIES	CLEANER	0	0	0.2500
MINES LISTING	MINES	0	0	0.2500

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
SPILLS, LEAKS, INVESTIGATION & CLEANUP RECOVERY LISTING	SLIC	0	0	0.2500
CORTESE LIST	CORTESE	0	0	0.5000
EXPEDITED REMOVAL ACTION PROGRAM SITES	ERAP	0	0	0.5000
HISTORICAL CORTESE LIST	HISTCORTESE	2	0	0.5000
LISTING OF CERTIFIED DROPOFF, COLLECTION, AND COMMUNITY SERVICE PROGRAMS	DROP	0	0	0.5000
LISTING OF CERTIFIED PROCESSORS	PROC	0	0	0.5000
NO FURTHER ACTION DETERMINATION	NFA	0	0	0.5000
RECYCLING CENTERS	SWRCY	0	0	0.5000
REFERRED TO ANOTHER LOCAL OR STATE AGENCY	REF	1	0	0.5000
SITES NEEDING FURTHER EVALUATION	NFE	0	0	0.5000
WASTE MANAGEMENT UNIT DATABASE	WMUDS	0	0	0.5000
TOXIC PITS CLEANUP ACT SITES	TOXPITS	0	0	1.0000

SUB-TOTAL		3	0	

Database Summary

TRIBAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR09	0	0	0.2500
ILLEGAL DUMP SITES ON THE TORRES MARTINEZ RESERVATION	TORRESDUMPSITES	0	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR09	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000
SUB-TOTAL		0	0	

TOTAL		10	0	

Database Radius Summary

FEDERAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRSAFS	0.0200	0	NS	NS	NS	NS	NS	0
BRS	0.0200	0	NS	NS	NS	NS	NS	0
CDL	0.0200	0	NS	NS	NS	NS	NS	0
DOCKETS	0.0200	0	NS	NS	NS	NS	NS	0
EC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
ECHOR09	0.0200	0	NS	NS	NS	NS	NS	0
ERNSCA	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
FRSCA	0.0200	0	NS	NS	NS	NS	NS	0
HMIRSR09	0.0200	0	NS	NS	NS	NS	NS	0
ICIS	0.0200	0	NS	NS	NS	NS	NS	0
ICISNPDES	0.0200	0	NS	NS	NS	NS	NS	0
LUCIS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
MLTS	0.0200	0	NS	NS	NS	NS	NS	0
NPDESR09	0.0200	0	NS	NS	NS	NS	NS	0
PADS	0.0200	0	NS	NS	NS	NS	NS	0
PCSR09	0.0200	0	NS	NS	NS	NS	NS	0
RCRASC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
SEMSLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SFLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SSTS	0.0200	0	NS	NS	NS	NS	NS	0
TRI	0.0200	0	NS	NS	NS	NS	NS	0
TSCA	0.0200	0	NS	NS	NS	NS	NS	0
RCRAGR09	**0.1250**	**0**	**0**	**NS**	**NS**	**NS**	**NS**	**0**
RCRANGR09	**0.1250**	**0**	**0**	**NS**	**NS**	**NS**	**NS**	**0**
ALTFUELS	0.2500	0	0	0	NS	NS	NS	0
FEMAUST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
HISTPST	0.2500	0	0	0	NS	NS	NS	0
ICISCLEANERS	0.2500	0	0	0	NS	NS	NS	0
MRDS	0.2500	0	0	0	NS	NS	NS	0
MSHA	0.2500	0	0	0	NS	NS	NS	0
BF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
DNPL	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
NLRRCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODI	0.5000	0	0	0	0	NS	NS	0
RCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**

Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
SEMS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SEMSARCH	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SMCRA	0.5000	0	0	0	0	NS	NS	0
USUMTRCA	0.5000	0	0	0	0	NS	NS	0
DOD	1.0000	0	0	0	0	0	NS	0
FUDS	1.0000	0	0	0	0	0	NS	0
FUSRAP	1.0000	0	0	0	0	0	NS	0
NLRRCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
NMS	1.0000	0	0	0	0	0	NS	0
NPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
PNPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRASUBC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RODS	1.0000	0	0	0	0	0	NS	0

SUB-TOTAL		0	0	0	0	0	0	0

Database Radius Summary

STATE (CA) LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
CDL	0.0200	0	NS	NS	NS	NS	NS	0
CHMIRS	0.0200	0	NS	NS	NS	NS	NS	0
DTSCDR	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
EMI	0.0200	0	NS	NS	NS	NS	NS	0
HWTS	0.0200	0	NS	NS	NS	NS	NS	0
LDS	0.0200	0	NS	NS	NS	NS	NS	0
LIENS	0.0200	0	NS	NS	NS	NS	NS	0
MCS	0.0200	0	NS	NS	NS	NS	NS	0
NPDES	0.0200	0	NS	NS	NS	NS	NS	0
ABST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
AST2007	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
CLEANER	0.2500	0	0	0	NS	NS	NS	0
DTSCHWT	0.2500	0	0	0	NS	NS	NS	0
HISTUST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
MINES	0.2500	0	0	0	NS	NS	NS	0
MWMP	0.2500	0	0	0	NS	NS	NS	0
SLIC	0.2500	0	0	0	NS	NS	NS	0
SWEEPS	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
USTCUPA	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
BF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
CALSITES	**0.5000**	**0**	**0**	**0**	**1**	**NS**	**NS**	**1**
CLEANUPSITES	**0.5000**	**0**	**1**	**0**	**1**	**NS**	**NS**	**2**
CORTESE	0.5000	0	0	0	0	NS	NS	0
DROP	0.5000	0	0	0	0	NS	NS	0
ERAP	0.5000	0	0	0	0	NS	NS	0
HISTCORTESE	0.5000	0	1	0	1	NS	NS	2
LUST	**0.5000**	**0**	**1**	**0**	**1**	**NS**	**NS**	**2**
NFA	0.5000	0	0	0	0	NS	NS	0
NFE	0.5000	0	0	0	0	NS	NS	0
PROC	0.5000	0	0	0	0	NS	NS	0
REF	0.5000	0	0	0	1	NS	NS	1
SWIS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SWRCY	0.5000	0	0	0	0	NS	NS	0
VCP	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
WMUDS	0.5000	0	0	0	0	NS	NS	0

Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
ENVIROSTOR	**1.0000**	**0**	**0**	**0**	**1**	**1**	**NS**	**2**
ENVIROSTORPCA	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
TOXPITS	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		0	3	0	6	1	0	10

Database Radius Summary

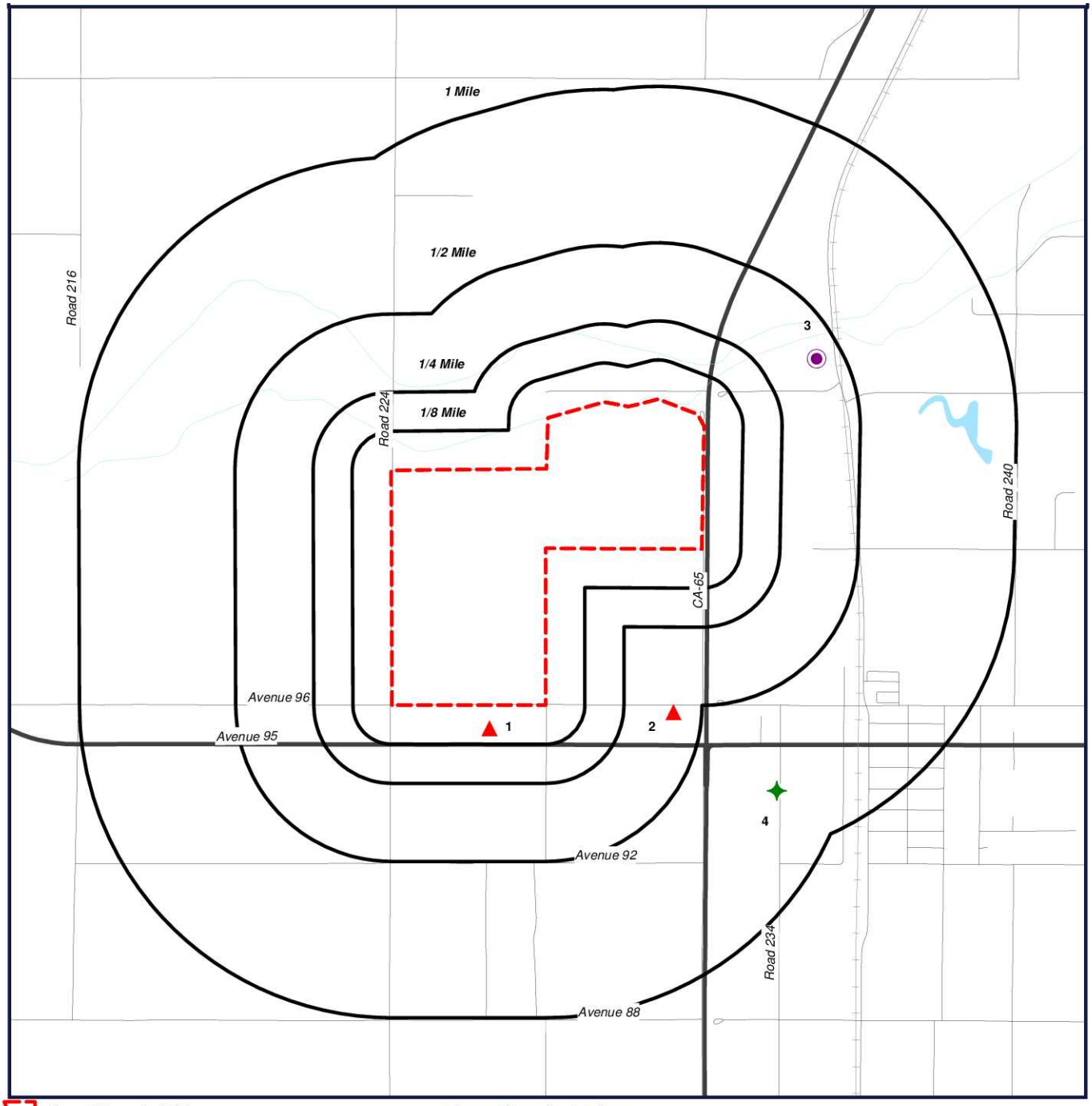
TRIBAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR09	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
LUSTR09	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODINDIAN	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
TORRESDUMPSITES	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
INDIANRES	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		0	0	0	0	0	0	0
TOTAL		0	3	0	6	1	0	10

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



Target Property (TP)
CLEANUPSITES
CALSITES
ENVIROSTOR

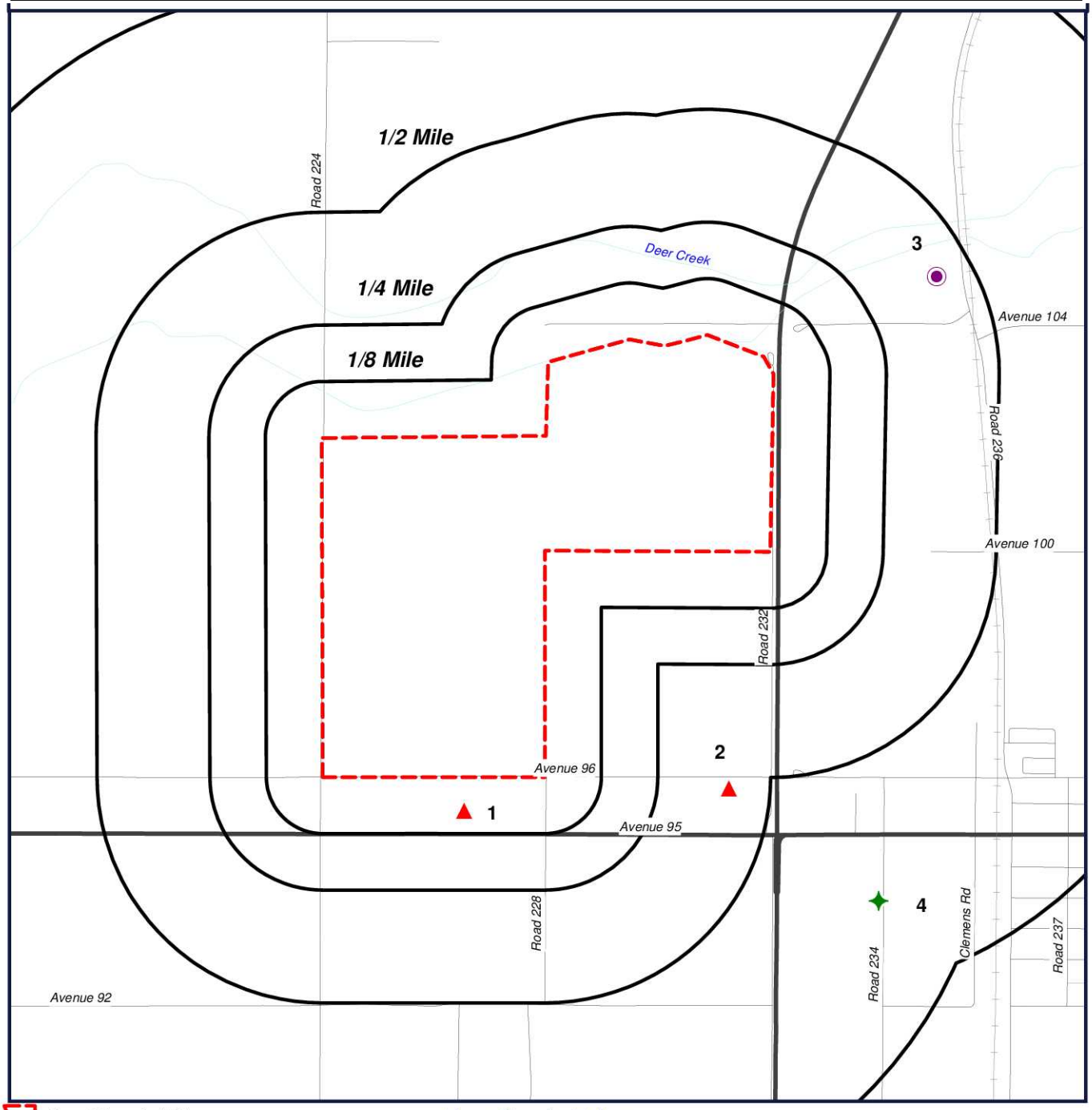
Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 1300' 2600' 3900'
SCALE: 1" = 2600'

Click here to access Satellite view

Radius Map 2



Target Property (TP)
CLEANUPSITES
CALSITES
ENVIROSTOR

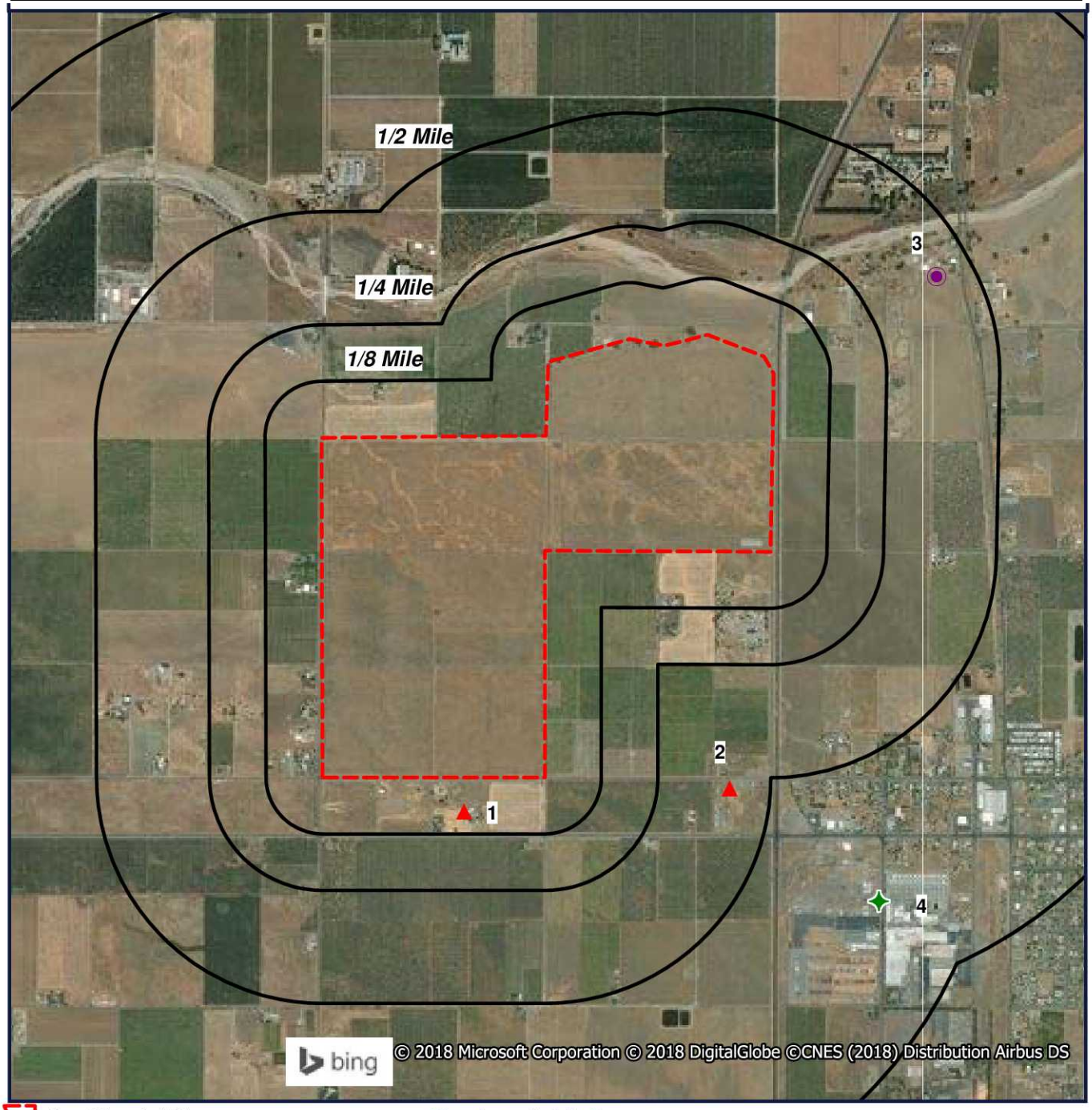
Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Ortho Map



Target Property (TP)
CLEANUPSITES
CALSITES
ENVIROSTOR

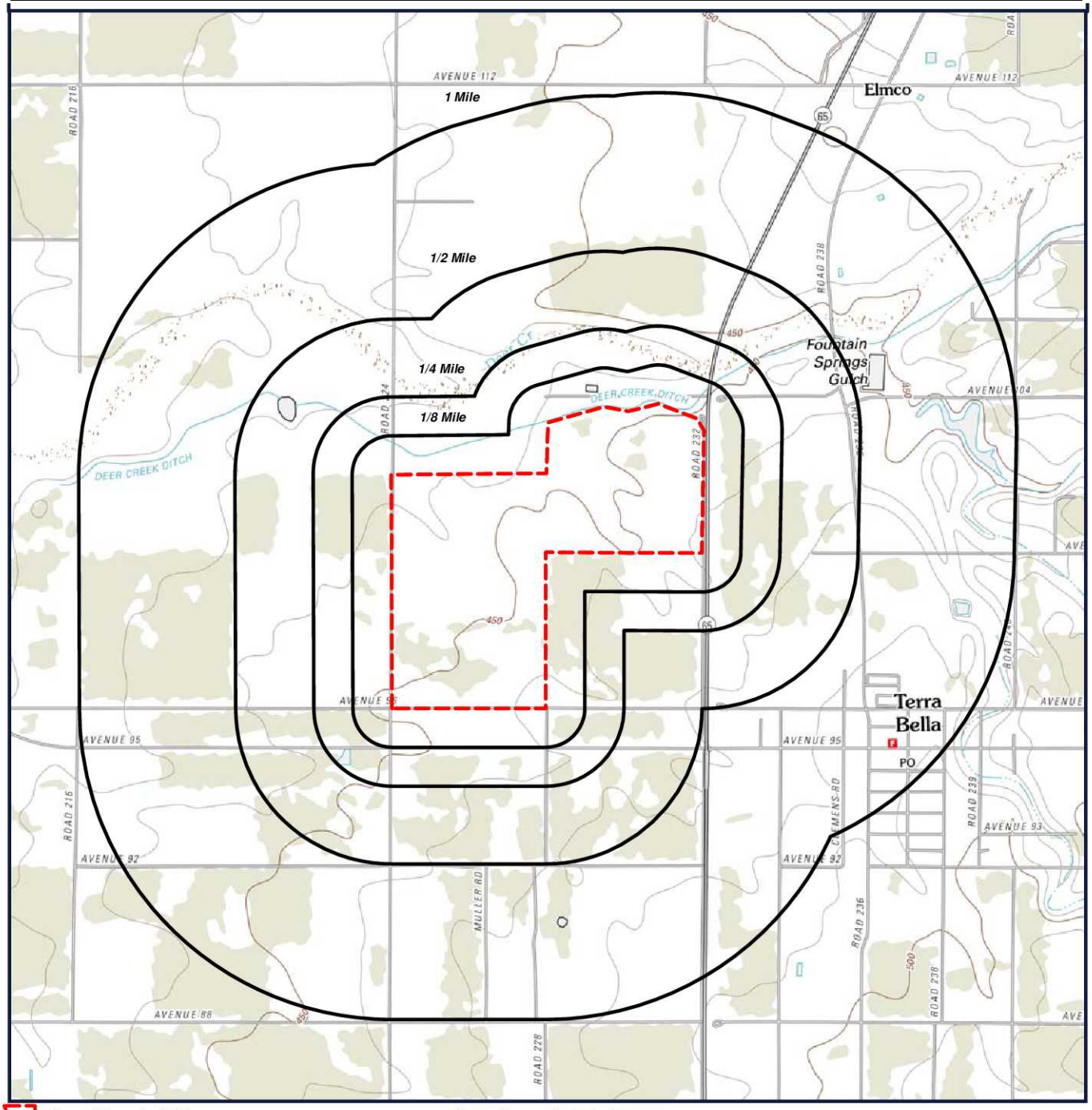
Quadrangle(s): Ducor
Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Topographic Map



Target Property (TP)

Quadrangle(s): Ducor
Source: USGS, 02/29/2012
Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 1300' 2600' 3900'
SCALE: 1" = 2600'

Click here to access Satellite view

Located Sites Summary

*NOTE: Standard environmental records are displayed in **bold**.*

Map ID#	Database Name	Site ID#	Relative Elevation	Distance From Site	Site Name	Address	PAGE #
1	***CLEANUPSITES***	***T0610700229***	***Higher (457 ft.)***	***0.079 mi. S (417 ft.)***	***FRANK L. MARIANI***	***22648 AVENUE 95, TERRA BELLA, CA 93270***	***18***
1	HISTCORTESE	5T54000229COR	Higher (457 ft.)	0.079 mi. S (417 ft.)	FRANK L. MARIANI	22648 95, TERRA BELLA, CA 93270	20
1	***LUST***	***T0610700229***	***Higher (457 ft.)***	***0.079 mi. S (417 ft.)***	***FRANK L. MARIANI***	***22648 AVENUE 95, TERRA BELLA, CA 93270***	***21***
2	***CLEANUPSITES***	***T0610700064***	***Higher (466 ft.)***	***0.41 mi. E (2165 ft.)***	***TERRA BELLA MOBILE STATION***	***23171 AVE 96, TERRA BELLA, CA 93270***	***22***
2	HISTCORTESE	5T54000063COR	Higher (466 ft.)	0.41 mi. E (2165 ft.)	TERRA BELLA MOBILE STATIO	23171 96, TERRA BELLA, CA 93270	24
2	***LUST***	***T0610700064***	***Higher (466 ft.)***	***0.41 mi. E (2165 ft.)***	***TERRA BELLA MOBILE STATION***	***23171 AVE 96, TERRA BELLA, CA 93270***	***25***
3	***CALSITES***	***54300006***	***Higher (457 ft.)***	***0.42 mi. ENE (2218 ft.)***	***TERRA BELLA PLASTICS***	***10513 ROAD 236, TERRA BELLA, CA 93270***	***26***
3	***ENVIROSTOR***	***54300006***	***Higher (457 ft.)***	***0.42 mi. ENE (2218 ft.)***	***TERRA BELLA PLASTICS***	***10513 ROAD 236, TERRA BELLA, CA 93270***	***27***
3	REF	000054300006	Higher (457 ft.)	0.42 mi. ENE (2218 ft.)	TERRA BELLA PLASTICS	10513 ROAD 236, TERRA BELLA, CA 93270	28
4	***ENVIROSTOR***	***54280049***	***Higher (476 ft.)***	***0.788 mi. ESE (4161 ft.)***	***TRI-COUNTY AG CHEM INC***	***23311 AVE 95, TERRA BELLA, CA 93270***	***29***

Elevation Summary

Elevations are collected from the USGS 3D Elevation Program 1/3 arc-second (approximately 10 meters) layer hosted at the NGTOC. .

Target Property Elevation: 454 ft.

*NOTE: Standard environmental records are displayed in **bold**.*

EQUAL/HIGHER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
1	***CLEANUPSITES***	***457 ft.***	***FRANK L. MARIANI***	***22648 AVENUE 95, TERRA BELLA, CA 93270***	***18***
1	HISTCORTESE	457 ft.	FRANK L. MARIANI	22648 95, TERRA BELLA, CA 93270	20
1	***LUST***	***457 ft.***	***FRANK L. MARIANI***	***22648 AVENUE 95, TERRA BELLA, CA 93270***	***21***
2	***CLEANUPSITES***	***466 ft.***	***TERRA BELLA MOBILE STATION***	***23171 AVE 96, TERRA BELLA, CA 93270***	***22***
2	HISTCORTESE	466 ft.	TERRA BELLA MOBILE STATIO	23171 96, TERRA BELLA, CA 93270	24
2	***LUST***	***466 ft.***	***TERRA BELLA MOBILE STATION***	***23171 AVE 96, TERRA BELLA, CA 93270***	***25***
3	***CALSITES***	***457 ft.***	***TERRA BELLA PLASTICS***	***10513 ROAD 236, TERRA BELLA, CA 93270***	***26***
3	***ENVIROSTOR***	***457 ft.***	***TERRA BELLA PLASTICS***	***10513 ROAD 236, TERRA BELLA, CA 93270***	***27***
3	REF	457 ft.	TERRA BELLA PLASTICS	10513 ROAD 236, TERRA BELLA, CA 93270	28
4	***ENVIROSTOR***	***476 ft.***	***TRI-COUNTY AG CHEM INC***	***23311 AVE 95, TERRA BELLA, CA 93270***	***29***

LOWER ELEVATION

No Records Found

MAP ID# 1

Distance from Property: 0.079 mi. (417 ft.) S
Elevation: 457 ft. (Higher than TP)

FACILITY INFORMATION

GLOBAL ID: **T0610700229**
URL LINK: CLICK HERE
BUSINESS NAME: **FRANK L. MARIANI**
ADDRESS: **22648 AVENUE 95**
TERRA BELLA, CA 93270
COUNTY: **TULARE**

FACILITY DETAILS

CASE TYPE: **LUST CLEANUP SITE**
CASE NUMBER: **5T54000229**
STATUS: **COMPLETED - CASE CLOSED 11/22/2010**
POTENTIAL CONTAMINATION:
GASOLINE
POTENTIAL MEDIA AFFECTED:
SOIL
SITE HISTORY:
NOT REPORTED

REGULATORY ACTIVITIES

TYPE OF ACTION:	DATE:	ACTION:
OTHER	01/01/50	LEAK DISCOVERY
OTHER	01/01/50	LEAK REPORTED
OTHER	01/01/50	LEAK STOPPED
ENFORCEMENT	11/22/2010	CLOSURE/NO FURTHER ACTION LETTER
ENFORCEMENT	10/19/2010	LOP CASE CLOSURE SUMMARY TO RB
ENFORCEMENT	10/06/2010	STAFF LETTER
RESPONSE	09/22/2010	OTHER REPORT / DOCUMENT
RESPONSE	09/20/2010	OTHER REPORT / DOCUMENT
ENFORCEMENT	06/07/2010	STAFF LETTER
ENFORCEMENT	04/13/2010	NOTICE OF VIOLATION
ENFORCEMENT	07/25/2007	FILE REVIEW
ENFORCEMENT	01/11/2006	FILE REVIEW
ENFORCEMENT	06/03/2003	* HISTORICAL ENFORCEMENT
ENFORCEMENT	07/25/2002	NOTICE OF VIOLATION
ENFORCEMENT	02/12/2001	NOTICE OF VIOLATION
ENFORCEMENT	06/16/1992	* HISTORICAL ENFORCEMENT
ENFORCEMENT	06/16/1992	STAFF LETTER
OTHER	11/27/1990	LEAK REPORTED
OTHER	10/18/1990	LEAK DISCOVERY
OTHER	10/18/1990	LEAK STOPPED

STATUS HISTORY

STATUS:	DATE:
COMPLETED - CASE CLOSED	11/22/2010
OPEN - SITE ASSESSMENT	08/06/2004

STATUS:	DATE:
OPEN - SITE ASSESSMENT	**01/14/1991**
OPEN - CASE BEGIN DATE	**10/18/1990**

CONTACT DETAILS

ORGANIZATION: **TULARE COUNTY**
ADDRESS: **5957 S. MOONEY BLVD**
CITY: **VISALIA**
CONTACT NAME: **DONALD R. PAPENHAUSEN**
CONTACT TYPE: **LOCAL AGENCY CASEWORKER**
CONTACT PHONE: **5596247420**
EMAIL: **DPAPENHA@TULAREHHSA.ORG**
ORGANIZATION: **CENTRAL VALLEY RWQCB (REGION 5F)**
ADDRESS: **1685 E STREET**
CITY: **FRESNO**
CONTACT NAME: **JOHN WHITING**
CONTACT TYPE: **REGIONAL BOARD CASEWORKER**
CONTACT PHONE: **NOT REPORTED**
EMAIL: **JOHN.WHITING@WATERBOARDS.CA.GOV**

Back to Report Summary

Historical Cortese List (HISTCORTESE)

MAP ID# 1

Distance from Property: 0.079 mi. (417 ft.) S
Elevation: 457 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **5T54000229COR**
ID#: **5T54000229**
NAME: **FRANK L. MARIANI**
ADDRESS: **22648 95**
TERRA BELLA, CA 93270

Back to Report Summary

Leaking Underground Storage Tanks (LUST)

MAP ID# 1

Distance from Property: 0.079 mi. (417 ft.) S
Elevation: 457 ft. (Higher than TP)

FACILITY INFORMATION

GLOBAL ID: **T0610700229**
URL LINK: CLICK HERE
BUSINESS NAME: **FRANK L. MARIANI**
ADDRESS: **22648 AVENUE 95**
TERRA BELLA, CA 93270
COUNTY: **TULARE**

FACILITY DETAILS

CASE TYPE: **LUST CLEANUP SITE**
CASE NUMBER: **5T54000229**
STATUS: **11/22/2010**
POTENTIAL CONTAMINATION:
GASOLINE
POTENTIAL MEDIA AFFECTED:
SOIL
SITE HISTORY:
NOT REPORTED

HISTORICAL FACILITY DETAILS

NO HISTORICAL DETAIL(S) INFORMATION REPORTED FOR THIS FACILITY

Back to Report Summary

MAP ID# 2

Distance from Property: 0.41 mi. (2,165 ft.) E
Elevation: 466 ft. (Higher than TP)

FACILITY INFORMATION

GLOBAL ID: **T0610700064**
URL LINK: CLICK HERE
BUSINESS NAME: **TERRA BELLA MOBILE STATION**
ADDRESS: **23171 AVE 96**
TERRA BELLA, CA 93270
COUNTY: **TULARE**

FACILITY DETAILS

CASE TYPE: **LUST CLEANUP SITE**
CASE NUMBER: **5T54000063**
STATUS: **OPEN - SITE ASSESSMENT 11/12/1993**
POTENTIAL CONTAMINATION:
GASOLINE
POTENTIAL MEDIA AFFECTED:
SOIL
SITE HISTORY:
MULTIPLE PROPERTY TRANSFERS HAVE OCCURRED SINCE 1960S. FORMER TANK OPERATOR, ED DINKINS, MOBIL GAS DISTRIBUTOR LEASED THE SITE AND INSTALLED ALL UNDERGROUND STORAGE TANKS, OIL TANK, PUMPS, ETS FOR THE OPERATION OF A MOBIL GAS STATION. UPON TERMINATION OF THE LEASE, MR. DINKINS REMOVED ALL OF THE GASOLINE TANKS IN MARCH 1986. TANK REMOVAL SAMPLING ANALYSIS INDICATED SIGNIFICANT HYDROCARBON CONTAMINATION. NO DOCUMENTATION IN FILE DIRECTING RP TO PERFORM SITE ASSESSMENT. WASTE OIL TANK WAS REMOVED IN 1988 (NO SIGNIFICANT OIL CONTAMINATION DISCOVERED). AN UNAUTHORIZED RELEASE REPORT FORM WAS COMPLETED JUNE 10, 1988. LIMITED SITE ASSESSMENT WAS CONDUCTED IN OCTOBER 1993. UST CLAIM APPLICATION WAS RECEIVED MARCH 24, 1998. UST CLAIM APPLICATION WAS REJECTED BY STAFF DECISION ON APRIL 7, 1998 AND AGAIN BY THE UST CLEANUP FUND PROGRAM, PROGRAM MANAGER ON MAY 5, 1998. PROPERTY WAS SOLD TO GENOVEVA HERNANDEZ, CURRENT OWNER OF RECORD WITH A DATE OF TRANSFER 3/20/2001. COPIES OF ALL REGULATORY DIRECTIVE LETTERS TO MS. HERNANDEZ HAVE BEEN UPLOADED INTO GEOTRACKER. MS. HERNANDEZ HAS FAILED TO RESPOND TO ALL ATTEMPTS TO PERFORM CORRECTIVE ACTION TO INVESTIGATE THE EFFECTS OF THE RELEASE AND TO IMPLEMENT A COST EFFECTIVE PLAN TO PROTECT HUMAN HEALTH, SAFETY AND THE ENVIRONMENT.

REGULATORY ACTIVITIES

TYPE OF ACTION:	DATE:	ACTION:
OTHER	**01/01/50**	**LEAK REPORTED**
OTHER	**01/01/50**	**LEAK STOPPED**
ENFORCEMENT	**09/17/2015**	**STAFF LETTER**
RESPONSE	**01/27/2014**	**PRELIMINARY SITE ASSESSMENT WORKPLAN**
ENFORCEMENT	**09/25/2013**	**STAFF LETTER**
ENFORCEMENT	**11/28/2011**	**NOTICE OF VIOLATION**
ENFORCEMENT	**05/19/2011**	**FILE REVIEW**
ENFORCEMENT	**03/30/2010**	**NOTICE OF VIOLATION**
ENFORCEMENT	**03/04/2008**	**NOTICE OF RESPONSIBILITY**
ENFORCEMENT	**03/04/2008**	**VERBAL COMMUNICATION**
ENFORCEMENT	**07/26/2007**	**NOTICE OF RESPONSIBILITY**
RESPONSE	**05/05/1998**	**CORRESPONDENCE**
RESPONSE	**04/10/1998**	**CORRESPONDENCE**

TYPE OF ACTION:	DATE:	ACTION:
RESPONSE	**11/12/1993**	**SITE ASSESSMENT REPORT**
RESPONSE	**11/30/1990**	**SOIL AND WATER INVESTIGATION REPORT**
ENFORCEMENT	**08/04/1988**	**STAFF LETTER**
OTHER	**06/10/1988**	**LEAK REPORTED**
RESPONSE	**06/10/1988**	**TANK REMOVAL REPORT / UST SAMPLING REPORT**
RESPONSE	**03/14/1986**	**TANK REMOVAL REPORT / UST SAMPLING REPORT**
OTHER	**03/13/1986**	**LEAK STOPPED**

STATUS HISTORY

STATUS:	DATE:
OPEN - INACTIVE	**05/28/2015**
OPEN - SITE ASSESSMENT	**11/12/1993**
OPEN - SITE ASSESSMENT	**05/23/1988**
OPEN - CASE BEGIN DATE	**02/26/1986**

CONTACT DETAILS

ORGANIZATION: **CENTRAL VALLEY RWQCB (REGION 5F)**
ADDRESS: **1685 E STREET**
CITY: **FRESNO**
CONTACT NAME: **KHALID DURRANI**
CONTACT TYPE: **REGIONAL BOARD CASEWORKER**
CONTACT PHONE: **NOT REPORTED**
EMAIL: **KDURRANI@WATERBOARDS.CA.GOV**

Back to Report Summary

Historical Cortese List (HISTCORTESE)

MAP ID# 2

Distance from Property: 0.41 mi. (2,165 ft.) E
Elevation: 466 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **5T54000063COR**
ID#: **5T54000063**
NAME: **TERRA BELLA MOBILE STATIO**
ADDRESS: **23171 96**
TERRA BELLA, CA 93270

Back to Report Summary

Leaking Underground Storage Tanks (LUST)

MAP ID# 2

Distance from Property: 0.41 mi. (2,165 ft.) E
Elevation: 466 ft. (Higher than TP)

FACILITY INFORMATION

GLOBAL ID: **T0610700064**
URL LINK: CLICK HERE
BUSINESS NAME: **TERRA BELLA MOBILE STATION**
ADDRESS: **23171 AVE 96**
TERRA BELLA, CA 93270
COUNTY: **TULARE**

FACILITY DETAILS

CASE TYPE: **LUST CLEANUP SITE**
CASE NUMBER: **5T54000063**
STATUS: **11/12/1993**
POTENTIAL CONTAMINATION:
GASOLINE
POTENTIAL MEDIA AFFECTED:
SOIL
SITE HISTORY:
MULTIPLE PROPERTY TRANSFERS HAVE OCCURRED SINCE 1960S. FORMER TANK OPERATOR, ED DINKINS, MOBIL GAS DISTRIBUTOR LEASED THE SITE AND INSTALLED ALL UNDERGROUND STORAGE TANKS, OIL TANK, PUMPS, ETS FOR THE OPERATION OF A MOBIL GAS STATION. UPON TERMINATION OF THE LEASE, MR. DINKINS REMOVED ALL OF THE GASOLINE TANKS IN MARCH 1986. TANK REMOVAL SAMPLING ANALYSIS INDICATED SIGNIFICANT HYDROCARBON CONTAMINATION. NO DOCUMENTATION IN FILE DIRECTING RP TO PERFORM SITE ASSESSMENT. WASTE OIL TANK WAS REMOVED IN 1988 (NO SIGNIFICANT OIL CONTAMINATION DISCOVERED). AN UNAUTHORIZED RELEASE REPORT FORM WAS COMPLETED JUNE 10, 1988. LIMITED SITE ASSESSMENT WAS CONDUCTED IN OCTOBER 1993. UST CLAIM APPLICATION WAS RECEIVED MARCH 24, 1998. UST CLAIM APPLICATION WAS REJECTED BY STAFF DECISION ON APRIL 7, 1998 AND AGAIN BY THE UST CLEANUP FUND PROGRAM, PROGRAM MANAGER ON MAY 5, 1998. PROPERTY WAS SOLD TO GENOVEVA HERNANDEZ, CURRENT OWNER OF RECORD WITH A DATE OF TRANSFER 3/20/2001. COPIES OF ALL REGULATORY DIRECTIVE LETTERS TO MS. HERNANDEZ HAVE BEEN UPLOADED INTO GEOTRACKER. MS. HERNANDEZ HAS FAILED TO RESPOND TO ALL ATTEMPTS TO PERFORM CORRECTIVE ACTION TO INVESTIGATE THE EFFECTS OF THE RELEASE AND TO IMPLEMENT A COST EFFECTIVE PLAN TO PROTECT HUMAN HEALTH, SAFETY AND THE ENVIRONMENT.

HISTORICAL FACILITY DETAILS

NO HISTORICAL DETAIL(S) INFORMATION REPORTED FOR THIS FACILITY

Back to Report Summary

MAP ID# 3

Distance from Property: 0.42 mi. (2,218 ft.) ENE
Elevation: 457 ft. (Higher than TP)

FACILITY INFORMATION

ID #: **54300006**

NAME: **TERRA BELLA PLASTICS**

ADDRESS: **10513 ROAD 236**
TERRA BELLA, CA

STATUS (DATE): **PROPERTY/SITE REFERRED TO RWQCB (01/15/1992)**

STANDARD INDUSTRIAL CLASSIFICATION BELIEVED TO BE CAUSE OF (POTENTIAL) CONTAMINATION:
MANU - RUBBER & MISC PLASTICS PRODUCTS

ACCESS TO SITE: **NOT REPORTED**

GROUNDWATER CONTAMINATION: **NOT REPORTED**

COMMENTS

FACILITY IDENTIFIED IDENTIFIED FROM DMI LISTING QUESTIONNAIRE SENT QUEST RECEIVED. MFG SOLAR PANELS & PLASTIC CONTAINERS FACILITY DRIVE-BY PLASTIC DEBRIS W SIDE OF BLDG. 5 PONDS W SIDE OF BLDG-RIVER N SIDE. MANY PICKLG TANKS & UNLABELLED BBLS & ACETIC ACID, LACQUER BARRELS FINAL STRATEGY SITE REFERRED: TO HWMB/ENF

Back to Report Summary

MAP ID# 3

Distance from Property: 0.42 mi. (2,218 ft.) ENE
Elevation: 457 ft. (Higher than TP)

SITE INFORMATION

ID #: **54300006** ASSESSOR'S PARCEL #: **NONE SPECIFIED**
URL LINK: CLICK HERE
NAME: **TERRA BELLA PLASTICS**
ADDRESS: **10513 ROAD 236**
TERRA BELLA, CA 93270
COUNTY: **TULARE**
SITE SIZE (ACRES): **NOT REPORTED**
LEAD AGENCY: **NONE SPECIFIED**
DTSC PROJECT MANAGER: **NOT REPORTED**
DTSC SUPERVISOR: **REFERRED - NOT ASSIGNED**
DTSC DIVISION BRANCH: **CLEANUP SACRAMENTO**
NPL LISTED: **NO** RESTRICTED LAND USE: **NO**
SITE TYPE: **HISTORICAL**
SITE TYPE DESCRIPTION
HISTORICAL: IDENTIFIES SITES FROM AN OLDER DATABASE WHERE NO SITE TYPE WAS IDENTIFIED. MOST OF THESE SITES HAVE A STATUS OF REFERRED OR NO FURTHER ACTION. DTSC IS WORKING TO CLEAN UP THIS DATA BY IDENTIFYING AN APPROPRIATE SITE TYPE FOR EACH "HISTORIC" SITE.
DTSC's CURRENT INVOLVEMENT AT SITE (as of 01/15/1992)
REFER: RWQCB -
PAST USE/S THAT CAUSED THE CONTAMINATION
NONE SPECIFIED
CONFIRMED CONTAMINANTS OF CONCERN
NONESPECIFIED - NONE SPECIFIED

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Referred to Another Local or State Agency (REF)

MAP ID# 3

Distance from Property: 0.42 mi. (2,218 ft.) ENE
Elevation: 457 ft. (Higher than TP)

ID#: **000054300006**
NAME: **TERRA BELLA PLASTICS**
ADDRESS: **10513 ROAD 236**
TERRA BELLA, CA 93270
COUNTY: **TULARE**
DTSC BRANCH: **CENTRAL CALIFORNIA**
REGIONAL WATER QUALITY BOARD: **NOT REPORTED**
LEAD AGENCY: **N/A**
STATUS: **01/15/1992 - PROPERTY/SITE REFERRED TO RWQCB**
SITE TYPE: **N/A**
STANDARD INDUSTRIAL CLASSIFICATION: **MANU - RUBBER & MISC PLASTICS PRODUCTS**
NPL: **NOT REPORTED**
STAFF: **NOT REPORTED**
SITE ACCESS: **UNCONTROLLED**
CORTESE LISTING: **NOT REPORTED**
HAZARD RANKING SCORE: **NOT REPORTED**
HAZARD RANKING DATE: **NOT REPORTED**
GROUNDWATER CONTAMINATION: **UNKNOWN**
CAUSE OF RELEASE OR POTENTIAL FOR RELEASE OF A HAZARDOUS SUBSTANCE:
NOT REPORTED
COMMENTS BY DTSC STAFF:
05061983
FACILITY IDENTIFIED FROM DMI LISTING. QUESTIONNAIRE SENT.
05161983
QUESTIONNAIRE RECEIVED. MANUFACTURES SOLAR PANELS AND PLASTIC CONTAINERS.
08291983
FACILITY DRIVE-BY: PLASTIC DEBRIS WEST SIDE OF BUILDING. 5 PONDS WEST SIDE OF BUILDING- RIVER NORTH SIDE OF BUILDING. MANY PICKLING TANKS AND UNLABELED BARRELS AND ACETIC ACID, LACQUER BARRELS.
09291983
FINAL STRATEGY. SITE REFERRED: TO HAZARDOUS WASTE MANAGEMENT BRANCH.
PROJECTED ACTIVITIES TO BE COMPLETED AT SITE:
COMPLETION DATE: **05/06/1983**
ACTIVITY: **DISC**
NAME: **DISCOVERY**

Back to Report Summary

MAP ID# 4

Distance from Property: 0.788 mi. (4,161 ft.) ESE
Elevation: 476 ft. (Higher than TP)

SITE INFORMATION

ID #: **54280049** ASSESSOR'S PARCEL #: **NONE SPECIFIED**
URL LINK: CLICK HERE
NAME: **TRI-COUNTY AG CHEM INC**
ADDRESS: **23311 AVE 95**
TERRA BELLA, CA 93270
COUNTY: **TULARE**
SITE SIZE (ACRES): **NOT REPORTED**
LEAD AGENCY: **NONE SPECIFIED**
DTSC PROJECT MANAGER: **NOT REPORTED**
DTSC SUPERVISOR: **REFERRED - NOT ASSIGNED**
DTSC DIVISION BRANCH: **CLEANUP SACRAMENTO**
NPL LISTED: **NO** RESTRICTED LAND USE: **NO**
SITE TYPE: **HISTORICAL**
SITE TYPE DESCRIPTION
HISTORICAL: IDENTIFIES SITES FROM AN OLDER DATABASE WHERE NO SITE TYPE WAS IDENTIFIED. MOST OF THESE SITES HAVE A STATUS OF REFERRED OR NO FURTHER ACTION. DTSC IS WORKING TO CLEAN UP THIS DATA BY IDENTIFYING AN APPROPRIATE SITE TYPE FOR EACH "HISTORIC" SITE.
DTSC's CURRENT INVOLVEMENT AT SITE (as of 01/10/1992)
REFER: OTHER AGENCY -
PAST USE/S THAT CAUSED THE CONTAMINATION
NONE SPECIFIED
CONFIRMED CONTAMINANTS OF CONCERN
NONESPECIFIED - NONE SPECIFIED

Back to Report Summary

Unlocated Sites Summary

This list contains sites that could not be mapped due to limited or incomplete address information.

No Records Found

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 10/20/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

BRS Biennial Reporting System

VERSION DATE: 12/31/11

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 07/01/16

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

DOCKETS EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 08/03/15

This database includes site locations where Engineering and/or Institutional Controls have been identified as part

of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

ECHOR09 Enforcement and Compliance History Information

VERSION DATE: 08/26/17

The EPA's Enforcement and Compliance History Online (ECHO) database, provides compliance and enforcement information for facilities nationwide. This database includes facilities regulated as Clean Air Act stationary sources, Clean Water Act direct dischargers, Resource Conservation and Recovery Act hazardous waste handlers, Safe Drinking Water Act public water systems along with other data, such as Toxics Release Inventory releases.

ERNSCA Emergency Response Notification System

VERSION DATE: 04/29/18

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

FRSCA Facility Registry System

VERSION DATE: 09/06/17

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

HMIRSR09 Hazardous Materials Incident Reporting System

VERSION DATE: 03/27/18

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 9. This region includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

ICIS Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 09/23/17

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

ICISNPDES Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 07/09/17

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

LUCIS Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 06/29/17

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements.

NPDESR09 National Pollutant Discharge Elimination System

VERSION DATE: 04/01/07

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES database was collected from December 2002 until April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data.This database includes permitted facilities located in EPA Region 9. This region includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

PADS PCB Activity Database System

VERSION DATE: 07/18/17

PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are

required to notify the EPA of such activities.

PCSR09 Permit Compliance System

VERSION DATE: 08/01/12

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 9. This region includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa. PCS has been modernized, and no longer exists. National Pollutant Discharge Elimination System (ICIS-NPDES) data can now be found in Integrated Compliance Information System (ICIS).

RCRASC RCRA Sites with Controls

VERSION DATE: 03/21/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with institutional controls in place.

SEMSLIENS SEMS Lien on Property

VERSION DATE: 04/11/18

The U.S. Environmental Protections Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs. This is a listing of SEMS sites with a lien on the property.

SFLIENS CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete.

SSTS Section Seven Tracking System

VERSION DATE: 02/01/17

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

TRI Toxics Release Inventory

VERSION DATE: 12/31/16

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal and tribal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/31/12

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

RCRAGR09 Resource Conservation & Recovery Act - Generator

VERSION DATE: 03/01/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities currently generating hazardous waste. EPA Region 9 includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

RCRANGR09 Resource Conservation & Recovery Act - Non-Generator

VERSION DATE: 03/01/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities classified as non-generators. Non-Generators do not presently generate hazardous waste. EPA Region 9 includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

ALTFUELS Alternative Fueling Stations

VERSION DATE: 01/22/18

Nationwide list of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE).

FEMAUST FEMA Owned Storage Tanks

VERSION DATE: 12/01/16

This is a listing of FEMA owned underground and aboveground storage tank sites. For security reasons, address information is not released to the public according to the U.S. Department of Homeland Security.

HISTPST Historical Gas Stations

VERSION DATE: NR

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

ICISCLEANERS Integrated Compliance Information System Drycleaners

VERSION DATE: 09/23/17

This is a listing of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

MRDS Mineral Resource Data System

VERSION DATE: 03/15/16

MRDS (Mineral Resource Data System) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS.

MSHA Mine Safety and Health Administration Master Index File

VERSION DATE: 09/01/17

The Mine dataset lists all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970. It includes such information as the current status of each mine (Active, Abandoned, NonProducing, etc.), the current owner and operating company, commodity codes and physical attributes of the mine. Mine ID is the unique key for this data. This information is provided by the United States Department of Labor - Mine Safety and Health Administration (MSHA).

BF Brownfields Management System

VERSION DATE: 03/26/18

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment. This database included tribal brownfield sites.

DNPL Delisted National Priorities List

VERSION DATE: 04/11/18

This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 03/01/18

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

ODI Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

RCRAT Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities

VERSION DATE: 03/01/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities recognized as hazardous waste treatment, storage, and disposal sites (TSD).

SEMS Superfund Enterprise Management System

VERSION DATE: 04/11/18

The U.S. Environmental Protections Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs.

SEMSARCH Superfund Enterprise Management System Archived Site Inventory

VERSION DATE: 04/11/18

The Superfund Enterprise Management System Archive listing (SEMS-ARCHIVE) has replaced the CERCLIS NFRAP reporting system in 2015. This listing reflect sites that have been assessed and no further remediation is planned and is of no further interest under the Superfund program.

SMCRA Surface Mining Control and Reclamation Act Sites

VERSION DATE: 08/25/17

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

USUMTRCA Uranium Mill Tailings Radiation Control Act Sites

VERSION DATE: 03/04/17

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

DOD Department of Defense Sites

VERSION DATE: 12/01/14

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

FUDS Formerly Used Defense Sites

VERSION DATE: 06/01/15

The Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. DISCLAIMER: This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

FUSRAP Formerly Utilized Sites Remedial Action Program

VERSION DATE: 03/04/17

The U.S. DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 03/01/18

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NMS Former Military Nike Missile Sites

VERSION DATE: 12/01/84

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites.
During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

NPL National Priorities List

VERSION DATE: 04/11/18

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

PNPL Proposed National Priorities List

VERSION DATE: 04/11/18

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 03/01/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with corrective action activity.

RCRASUBC Resource Conservation & Recovery Act - Subject to Corrective Action Facilities

VERSION DATE: 03/01/18

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities subject to corrective actions.

RODS Record of Decision System

VERSION DATE: 12/11/17

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

CDL Clandestine Drug Labs

VERSION DATE: 06/30/17

The California Department of Toxic Substance Control (DTSC) provides this listing of illegal drug laboratories. Pursuant to Section 25354.5 of the California Health and Safety Code, DTSC conducts emergency removal actions at clandestine drug labs at the request of State and local law enforcement agencies. DTSC's contractors typically remove hazardous substances that may pose an immediate threat to public health and the environment while the enforcement officials are on scene. During the emergency removal actions, contractors remove and properly dispose of contaminated lab equipment, chemicals used to make the illegal drugs (usually methamphetamine), lab chemical wastes, and other grossly contaminated materials. DTSC does not perform additional assessment work beyond standard emergency removal actions and makes no further determination regarding the need for future cleanup work at the emergency removal location. The reported location information may or may not include the actual location of the illegal drug lab. The DTSC does not guarantee the accuracy of the address or location information or the condition of the location listed.

CHMIRS California Hazardous Material Incident Report System

VERSION DATE: 04/06/18

The California Hazardous Material Incident Report System database is provided by the California Emergency Management Agency. This database contains accidental or spill release information from reported hazardous material incidents since 1993.

DTSCDR DTSC Deed Restrictions

VERSION DATE: 04/16/18

The California Department of Toxic Substances Control (DTSC) maintains this listing of sites with deed restrictions. According to the DTSC, restricted land use indicates whether the site or area within the site has an environmental restriction recorded and/or other institutional control preventing certain types of land use or activities. The land use restrictions listed under the site management requirements are only an abbreviated summary of the land use restrictions, and may not encompass all restrictions and notification requirements placed on a property. For complete land use restriction information please contact the DTSC to review associated Land Use Restriction documents.

EMI Emissions Inventory Data

VERSION DATE: 12/31/15

The Air Resources Board's Emissions Inventory Database contains criteria pollutant data and toxic data on facilities throughout the state of California for the 2012-2000 inventory years.

HWTS Hazardous Waste Tanner Summary

VERSION DATE: 12/31/16

This data is prepared from information extracted from copies of hazardous waste manifests received each year by the Department of Toxic Substances Control. The Hazardous Waste Summary Report (Tanner Report) currently includes manifest data from the 1993 through the 2016 reporting years.

LDS Land Disposal Sites

VERSION DATE: 04/16/18

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

LIENS Recorded Environmental Cleanup Liens

VERSION DATE: 05/17/18

The California Department of Toxic Substance Control (DTSC) maintains this listing of liens placed upon real properties. A lien is utilized by the DTSC to obtain reimbursement from responsible parties for costs associated with the remediation of contaminated properties.

MCS Military Cleanup Sites

VERSION DATE: 04/16/18

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater

NPDES National Pollutant Discharge Elimination System Facilities

VERSION DATE: 03/12/18

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

ABST Above Ground Storage Tanks

VERSION DATE: 03/22/18

This database, provided by the California Environmental Protection Agency's (CalEPA) Regulated Site Portal, contains aboveground petroleum storage tank facilities originating from the California Environmental Reporting System (CERS). These facilities store petroleum in aboveground storage tanks with oversight by local agencies. As of January 1, 2008, Assembly Bill No. 1130 of the Aboveground Petroleum Storage Act (APSA) authorized the Certified Unified Program Agencies to implement and administer the requirements of the APSA. CalEPA Data Disclaimer: Information displayed in the portal is collected from separate agency databases and displayed unaltered. Information that is considered confidential, trade secret, or is otherwise protected by the agency that

manages the database is not loaded into the portal. For more detail about information displayed in the portal, please visit the data source sites. Please refer to AST2007 database for aboveground storage tank information obtained from the California State Water Resources Control Board prior to 2008 APSA requirements.

AST2007 Aboveground Storage Tanks Prior to January 2008

VERSION DATE: 12/01/07

This database contains aboveground storage tank facilities registered with the California State Water Resources Control Board (SWRCB) between 2007 and 2003. Since 2006, tanks were required to contain a minimum (even as cumulative) of 1320 gallons to be in the program. As of January 1, 2008, the SWRCB no longer maintains a list of registered aboveground storage tanks, due to effective Assembly Bill No. 1130 (Laird) of the Aboveground Petroleum Storage Act (APSA). This Bill authorized the Certified Unified Program Agencies to implement and administer the requirements of the APSA. Please refer to ABST database as a current source for aboveground petroleum storage tank data.

CLEANER Dry Cleaner Facilities

VERSION DATE: 03/13/18

This database, created by accessing the California Department of Toxic Substances Control's (DTSC) Hazardous Waste Tracking System, includes dry cleaner facilities that have registered EPA identification numbers. These facilities are categorized with one of the following NAICS Codes: 81231 or 81232. This database may also include facilities other than dry cleaners who also register with these same NAICS Codes. Not all companies report their NAICS/SIC Codes to the DTSC and therefore this database may exclude registered dry cleaner facilities with incomplete classification information.

DTSCHWT DTSC Registered Hazardous Waste Transporters

VERSION DATE: 04/30/18

The Department of Toxic Substances Control provides this list of Registered Hazardous Waste Transporters.

HISTUST Historical Underground Storage Tanks

VERSION DATE: 12/31/87

The Hazardous Substance Storage Container Database is a historical list of Underground Storage Tank sites, compiled from tank survey and registration information collected at one time between 1984 and 1987 by the State Water Resources Control Board. The hazardous substances stored within these tanks includes, but not restricted to, petroleum products, industrial solvents, and other materials.

MINES Mines Listing

VERSION DATE: 02/11/18

This database includes mine site locations from the California Office of Mine Reclamation.

MWMP California Medical Waste Management Program Facility List

VERSION DATE: 04/13/18

To protect the public and the environment from potential infectious exposure to disease causing agents, the Medical Waste Management Program (MWMP), in the Environmental Management Branch of the California Department of Public Health, regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (MWMA). The MWMP permits and inspects all medical waste off-site treatment facilities, medical waste transporters, and medical waste transfer stations.

SLIC Spills, Leaks, Investigation & Cleanup Recovery Listing

VERSION DATE: 06/16/08

These records are maintained by the California Regional Water Quality Control Board (RWQCB). This list includes contaminated sites that impact groundwater or have the potential to impact ground water. Please refer to CLEANUPSITES database as source of current data.

SWEEPS Statewide Environmental Evaluation and Planning System

VERSION DATE: 10/01/94

The Statewide Environmental Evaluation and Planning System (SWEEPS) contains a historical listing of active and inactive underground storage tank locations from the State Water Resources Control Board. The hazardous substances stored within these tanks includes, but not restricted to, petroleum products, industrial solvents, and other materials. Refer to CUPA listing for source of current data.

USTCUPA Underground Storage Tanks

VERSION DATE: 05/06/18

An underground storage tank is an individual tank or group of tanks that store hazardous substances. Underground storage tanks are completely or considerably below the ground surface. This database contains UST permit data submitted from the Certified Unified Program Agencies (CUPA) directly to the State Water Resources Control Board. CUPA's are local agencies that have been certified by the California EPA to implement state environmental programs within the local agency's jurisdiction.

BF Brownfield Sites

VERSION DATE: 03/06/18

This database includes Brownfield sites from the State Water Resources Control Board. These are sites that have gone through the Moratorium of Agreement (MOA) process.

CALSITES CALSITES Database

VERSION DATE: 05/01/04

This historical database was maintained by the Department of Toxic Substance Control for more than a decade. CALSITES contains information on Brownfield properties with confirmed or potential hazardous contamination. In 2006, DTSC introduced EnviroStor as the latest Brownfields site database.

CLEANUPSITES GeoTracker Cleanup Sites

VERSION DATE: 04/16/18

This GeoTracker Cleanup Sites database is maintained by the California Regional Water Quality Control Board (RWQCB). The database contains contaminated sites that impact groundwater or have the potential to impact ground water, including spills, investigations, cleanup recoveries and reported leaking underground storage tank incidents.

CORTESE Cortese List

VERSION DATE: 05/06/18

This active listing includes hazardous waste and substances sites designated by the State Water Resources Control Board , the Integrated Waste Board, and the Department of Toxic Substance Control. The Cortese List is utilized by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites.

DROP Listing of Certified Dropoff, Collection, and Community Service Programs

VERSION DATE: 04/30/18

Listing of Certified Dropoff, Collection, and Community Service Programs (non-buyback) operating under the state of California's Beverage Container Recycling Program. This list is maintained by the Department of Conservation.

ERAP Expedited Removal Action Program Sites

VERSION DATE: 01/29/18

The Expedited Remedial Action Program is a pilot project administered by the Department of Toxic Substances Control's Site Mitigation and Brownfields Reuse Program to promote the cleanup of up to 30 hazardous substance release sites. ERAP provides significant incentives for redevelopment of contaminated properties by promoting cleanups based on the planned land use, by providing a covenant not to sue, and by outlining a fair and equitable liability scheme.

HISTCORTESE Historical Cortese List

VERSION DATE: 11/02/02

This historical listing includes hazardous waste and substances sites designated by the State Water Resources Control Board, the Integrated Waste Board, and the Department of Toxic Substance Control. The Cortese List was utilized by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. See CACORTESE for an updated version of this database.

LUST Leaking Underground Storage Tanks

VERSION DATE: 04/16/18

This database is maintained by the State Water Resources Control Board. LUST records contain an inventory of reported leaking underground storage tank incidents. Please refer to the CLEANUPSITES database as source of current data.

NFA No Further Action Determination

VERSION DATE: 07/01/05

The NFA listing contains properties at which the Department of Toxic Substance Control has made a clear determination that the property does not pose a problem to the environment or to public health.

NFE Sites Needing Further Evaluation

VERSION DATE: 07/01/05

The NFE listing contains properties that the Department of Toxic Substance Control suspects with possible contamination. These are unconfirmed contaminated properties that need further assessment.

PROC Listing of Certified Processors

VERSION DATE: 05/15/18

Listing of Certified Processors that are operating under the state of California's Beverage Container Recycling Program. This list is maintained by the Department of Conservation.

REF Referred to Another Local or State Agency

VERSION DATE: 07/01/05

The REF listing contains properties where contamination has not been confirmed and which were determined as not requiring direct Department of Toxic Substance Control Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.

SWIS Solid Waste Information System Sites

VERSION DATE: 04/18/18

The Solid Waste Information System (SWIS) database includes information on solid waste facilities, operations, and disposal sites located in California. This database is maintained by the California Department of Resources Recycling and Recovery.

SWRCY Recycling Centers

VERSION DATE: 05/17/18

Listing of Certified Recycling Centers that are operating under the state of California's Beverage Container Recycling Program. This list is maintained by the Department of Conservation.

VCP Voluntary Cleanup Program

VERSION DATE: 04/23/18

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

WMUDS Waste Management Unit Database

VERSION DATE: 01/01/00

The Waste Management Unit Database System tracks and inventories waste management units. CCR Title 27 contains criteria stating that Waste Management Units are classified according to their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology, and other factors relating to the ability of the Unit to protect water quality. Water Code Section 13273.1 requires that operators submit a water quality solid waste assessment test (SWAT) report to address leak status. The WMUDS was last updated by the State Water Resources control board in 2000.

ENVIROSTOR EnviroStor Cleanup Sites

VERSION DATE: 04/23/18

The Department of Toxic Substances Control (DTSC) has developed the EnviroStor database system to evaluate and track sites with confirmed or potential contamination and sites where further investigation may be necessary. This EnviroStor database of cleanup sites contains the following: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. Sites where DTSC has made a "No Action Required" determination are not included in this database, as these sites had assessments that revealed no evidence of recognized environmental conditions in connection with the property.

ENVIROSTORPCA EnviroStor Permitted and Corrective Action Sites

VERSION DATE: 05/01/18

The Department of Toxic Substances Control (DTSC) has developed the EnviroStor database system to evaluate and track sites with confirmed or potential contamination and sites where further investigation may be necessary. This EnviroStor database contains detailed information on hazardous waste permitted and corrective action facilities. Investigation and cleanup activities at hazardous waste facilities (either Resource Conservation and Recovery Act (RCRA) or State-only) that either were eligible for a permit or received a permit are called "corrective action." These facilities treated stored, disposed and/or transferred hazardous waste.

TOXPITS Toxic Pits Cleanup Act Sites

VERSION DATE: 07/01/95

Toxic Pits are sites with possible contamination of hazardous substances where cleanup is necessary. This listing is no longer updated by the State Water Resources Control Board.

USTR09 Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/13/17

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 9. This region includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

LUSTR09 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/13/17

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 9. This region includes the following states: Arizona, California, Hawaii, Nevada, and the territories of Guam and American Samoa.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

TORRESDUMPSITES Illegal Dump Sites on the Torres Martinez Reservation

VERSION DATE: 10/29/07

This listing of illegal dump site locations on the Torres Martinez Reservation is maintained by the United States Environmental Protection Agency, Region IX. These dump sites contain unlawfully discarded household waste such as landscaping and wood wastes with no known soil or groundwater contamination. A majority of the sites have already been cleaned up through the collaborative efforts of the EPA, The California Integrated Waste Management Board and the Torres Martinez Tribe.

INDIANRES Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

Appendix B

Historical Aerial Photographs, Topographic Maps, Fire Insurance Map, and Oil & Gas Report

ESA

GeoSearch

On time. On target. In touch.™

Historical Aerials Package

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239881
Project #: D170464.00
Date: 5/29/2018

Target Property Summary

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare, California 93270

USGS Quadrangle: ***Ducor***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-119.071602169, 35.964257230), (-119.062804524, 35.964257230), (-119.062804524, 35.971516505), (-119.053878132, 35.971481773), (-119.053749386, 35.977177582), (-119.054135624, 35.977733249), (-119.056367222, 35.978427827), (-119.057354275, 35.978219454), (-119.058083836, 35.978080538), (-119.059457127, 35.978288912), (-119.062675778, 35.977559603), (-119.062761608, 35.975197988), (-119.071645085, 35.975128528)

Aerial Research Summary

Date	Source	Scale	Frame
2016	USDA	1" = 1000'	N/A
2014	USDA	1" = 1000'	N/A
2012	USDA	1" = 1000'	N/A
2010	USDA	1" = 1000'	N/A
2009	USDA	1" = 1000'	N/A
2006	USDA	1" = 1000'	N/A
2005	USDA	1" = 1000'	N/A
2004	USDA	1" = 1000'	N/A
2003	USDA	1" = 1000'	N/A
09/04/1994	USGS	1" = 1000'	N/A
06/09/1989	USGS	1" = 1000'	1878-26
06/16/1984	USGS	1" = 1000'	143-25
06/02/1977	USGS	1" = 1000'	1-79
07/15/1969	USGS	1" = 1000'	2-181
06/23/1961	ASCS	1" = 1000'	PI-5
05/29/1956	ASCS	1" = 1000'	7-61
10/09/1952	ASCS	1" = 1000'	PI-13
1937	FAIRCHILD	1" = 1000'	53

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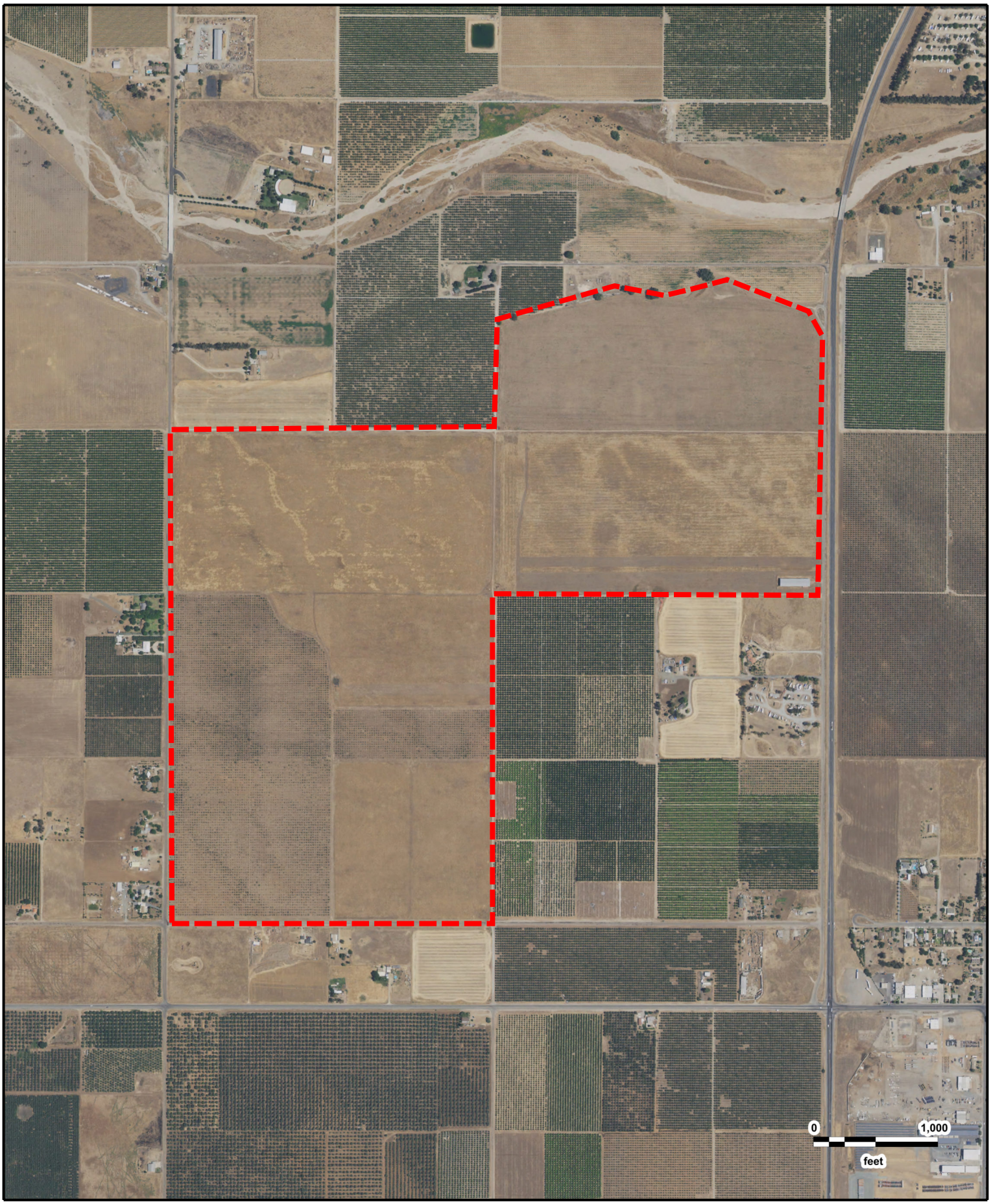
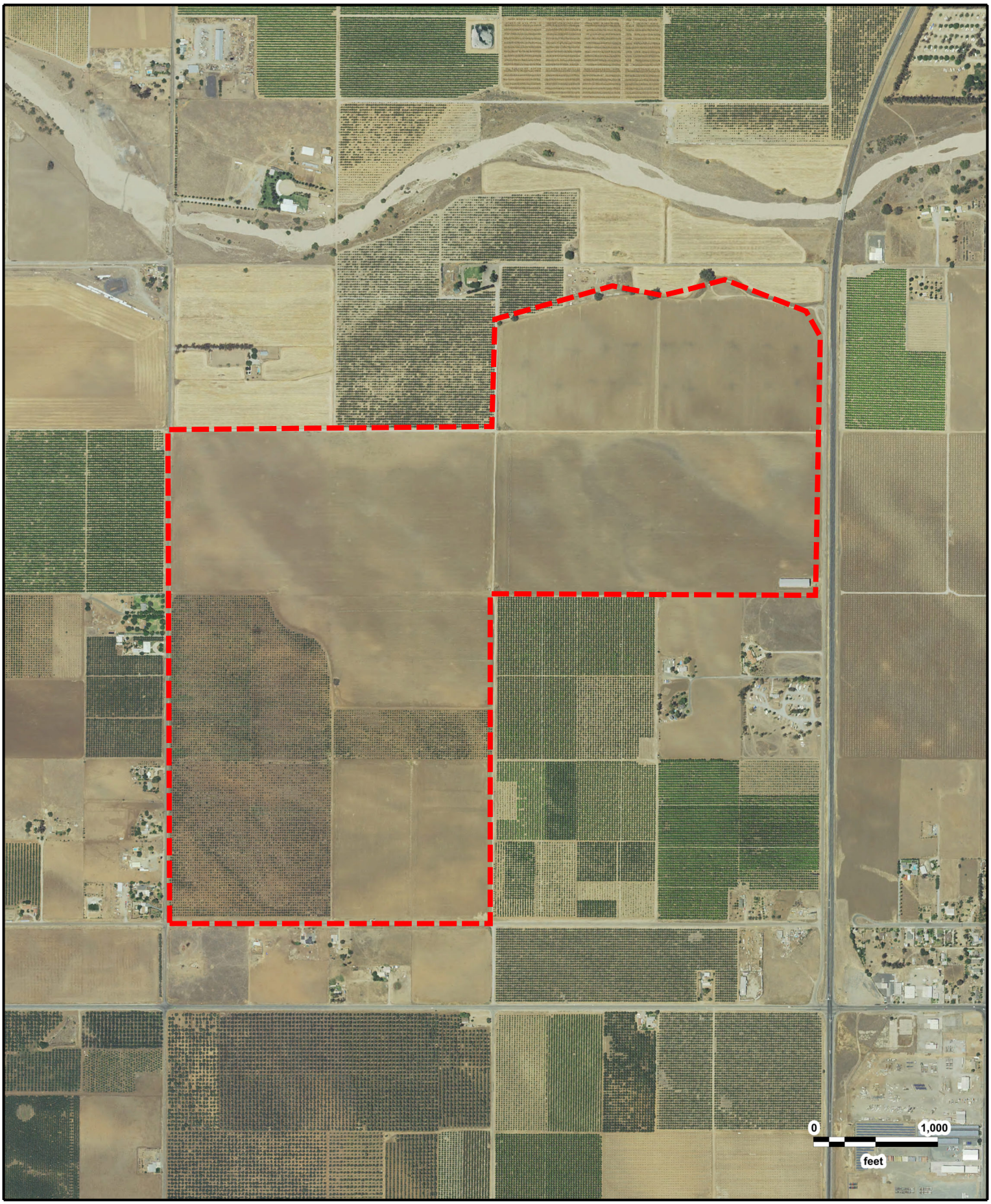


N
W E
S

Deer Creek - Tulare
USDA
2016

GeoSearch

JOB #: 239881 - 05/29/2018

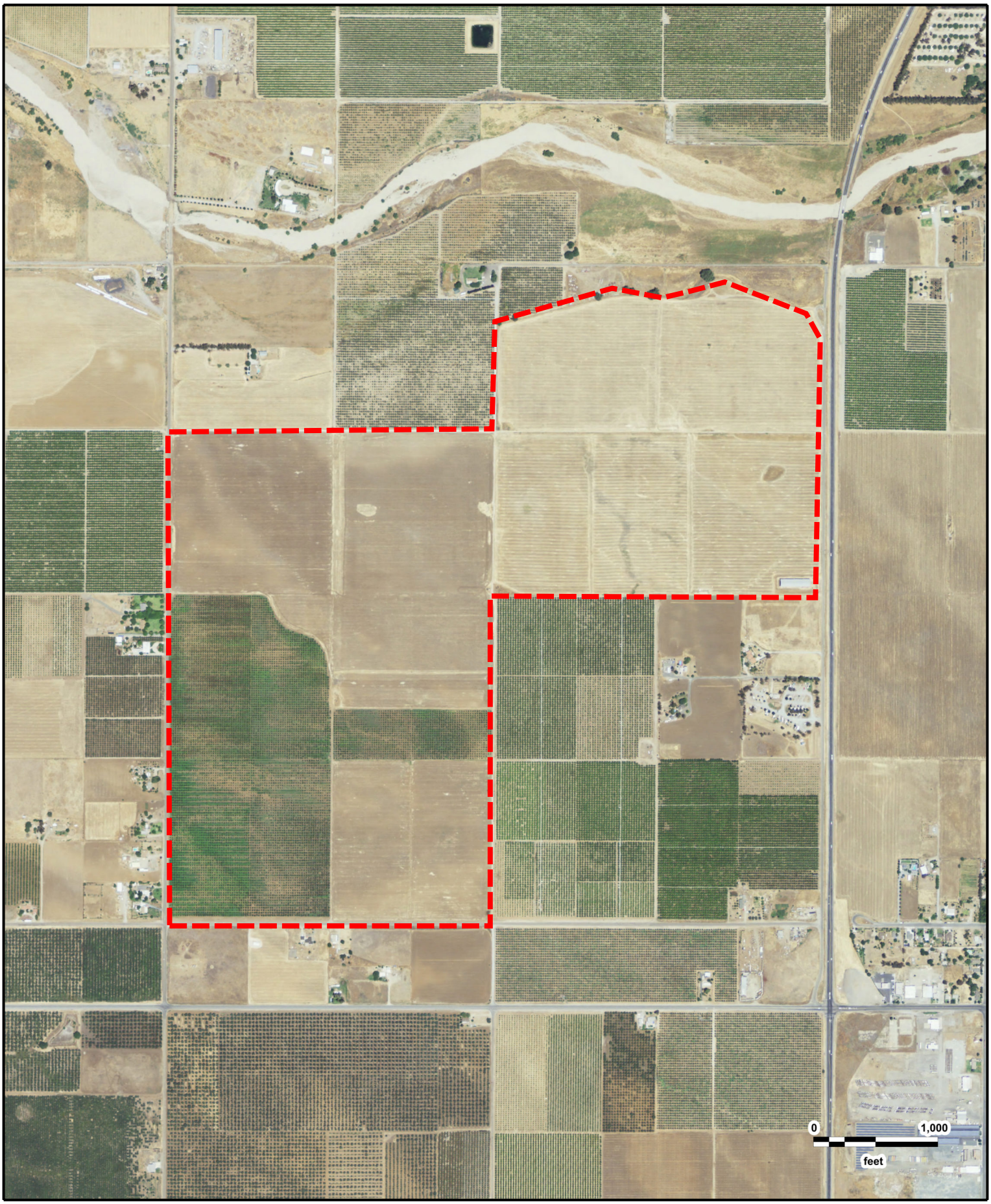


N
W E
S

Deer Creek - Tulare
USDA
2014

GeoSearch

JOB #: 239881 - 05/29/2018

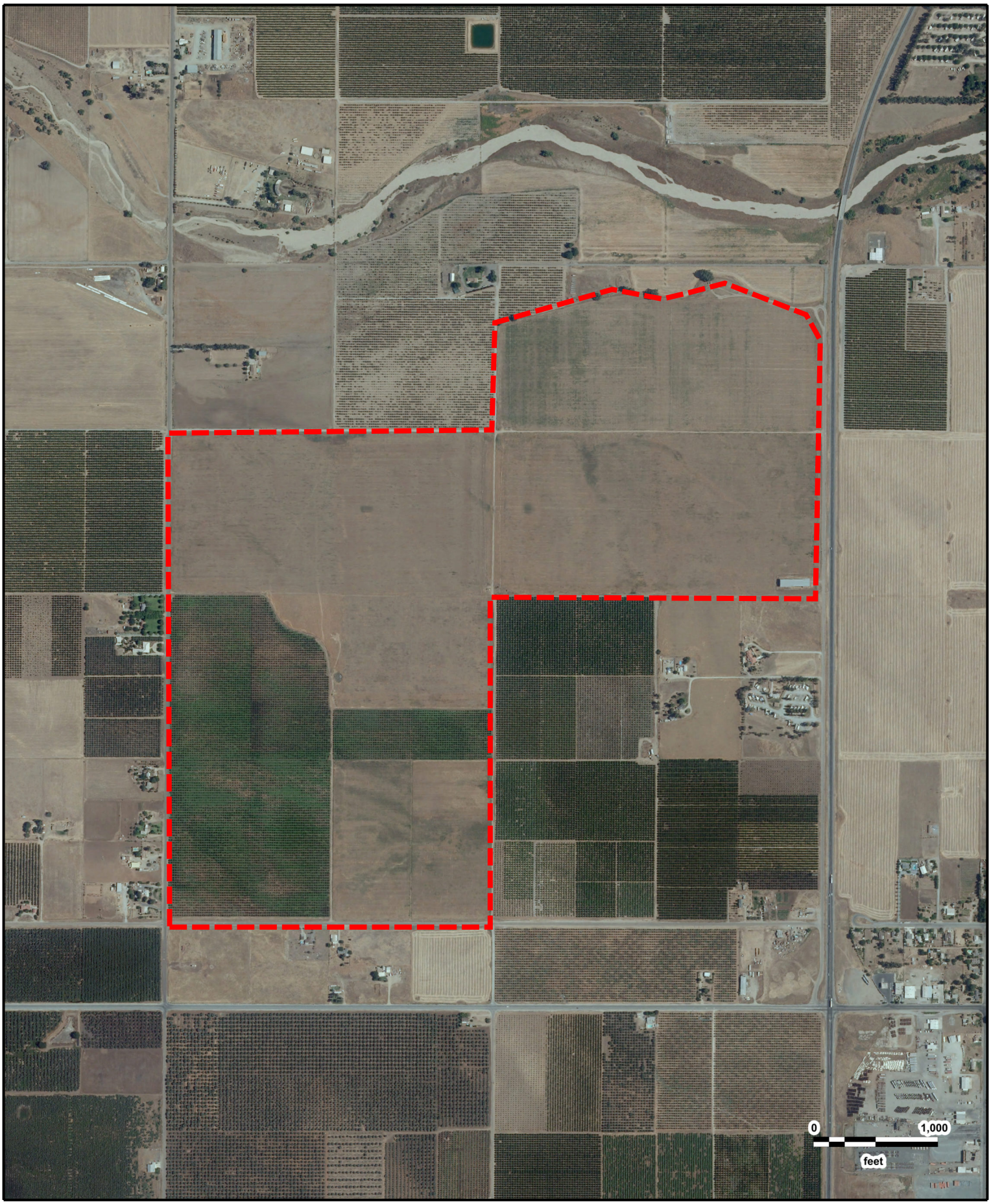


N
W E
S

Deer Creek - Tulare
USDA
2012

GeoSearch

JOB #: 239881 - 05/29/2018

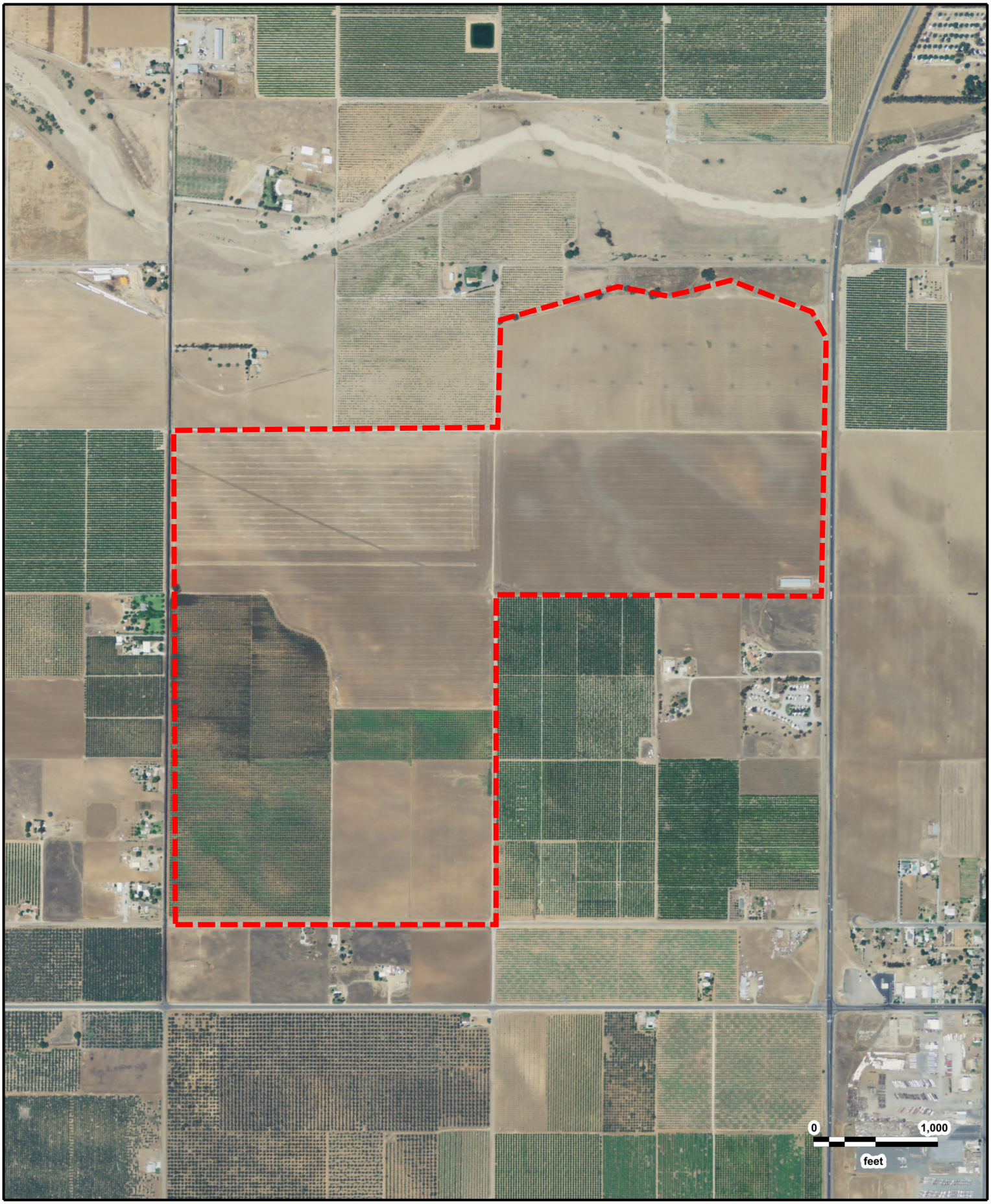


N
W E
S

Deer Creek - Tulare
USDA
2010

GeoSearch

JOB #: 239881 - 05/29/2018

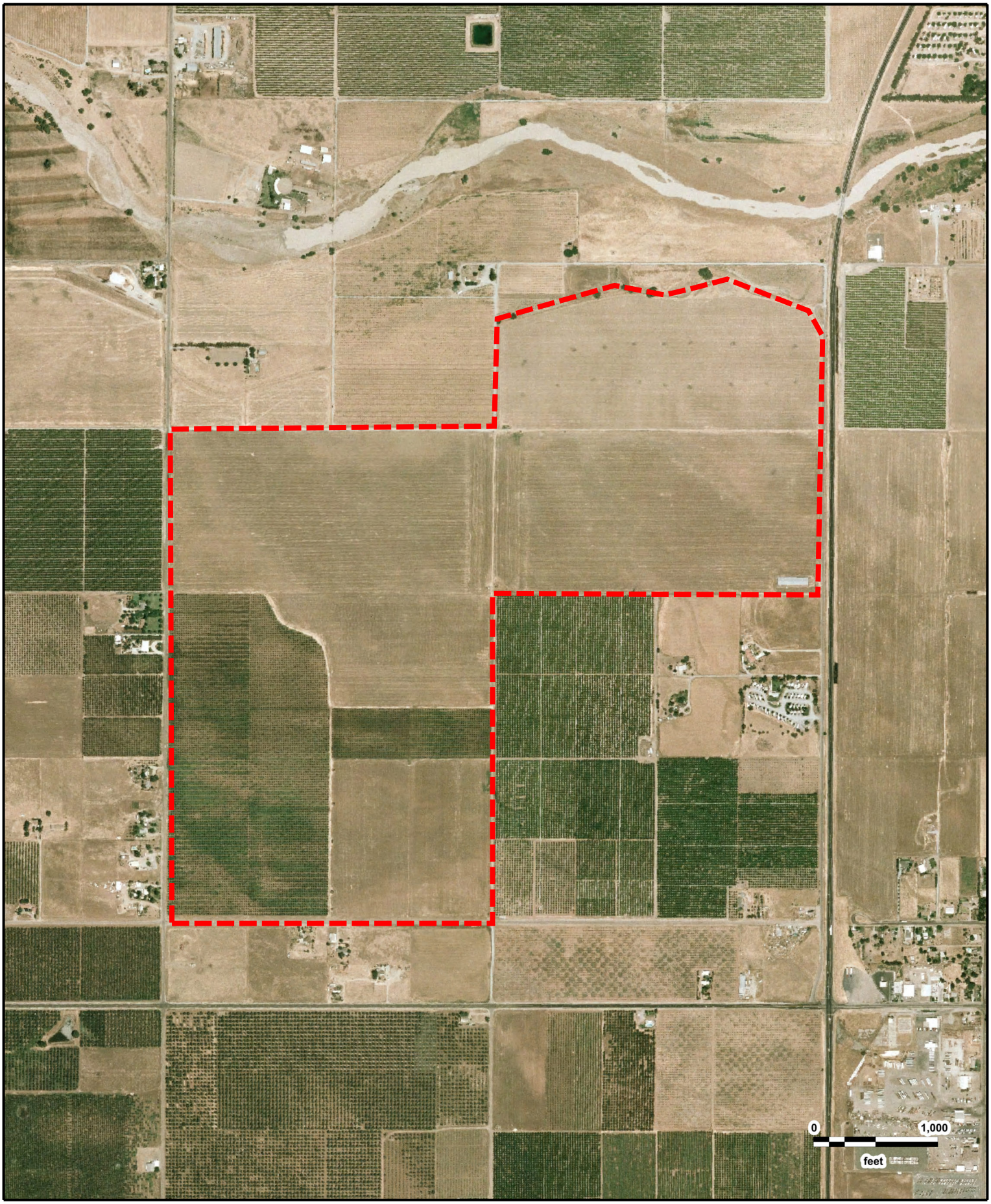


N
W E
S

Deer Creek - Tulare
USDA
2009

GeoSearch

JOB #: 239881 - 05/29/2018

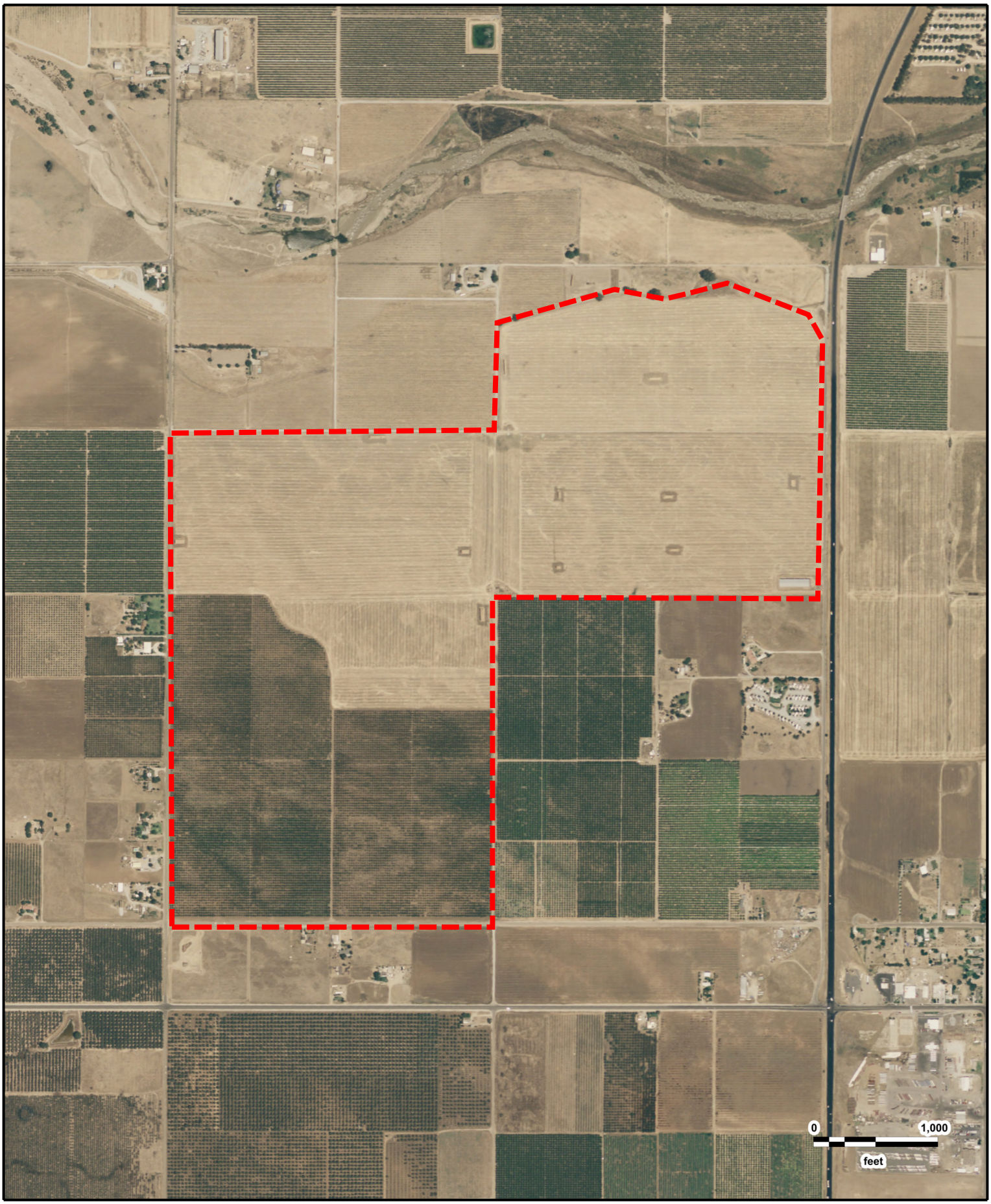


N
W E
S

Deer Creek - Tulare
USDA
2006

GeoSearch

JOB #: 239881 - 05/29/2018

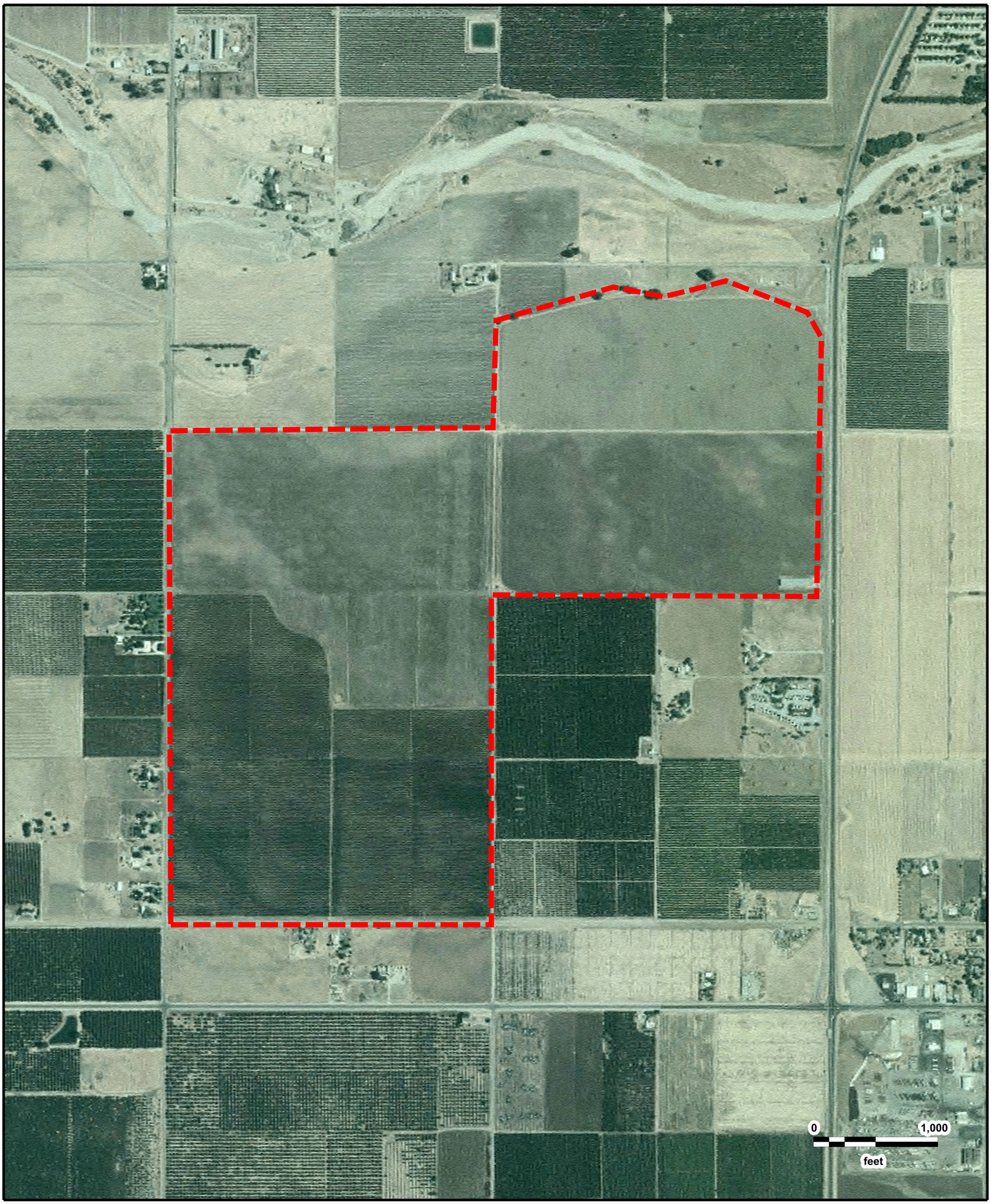


N
W E
S

Deer Creek - Tulare
USDA
2005

GeoSearch

JOB #: 239881 - 05/29/2018

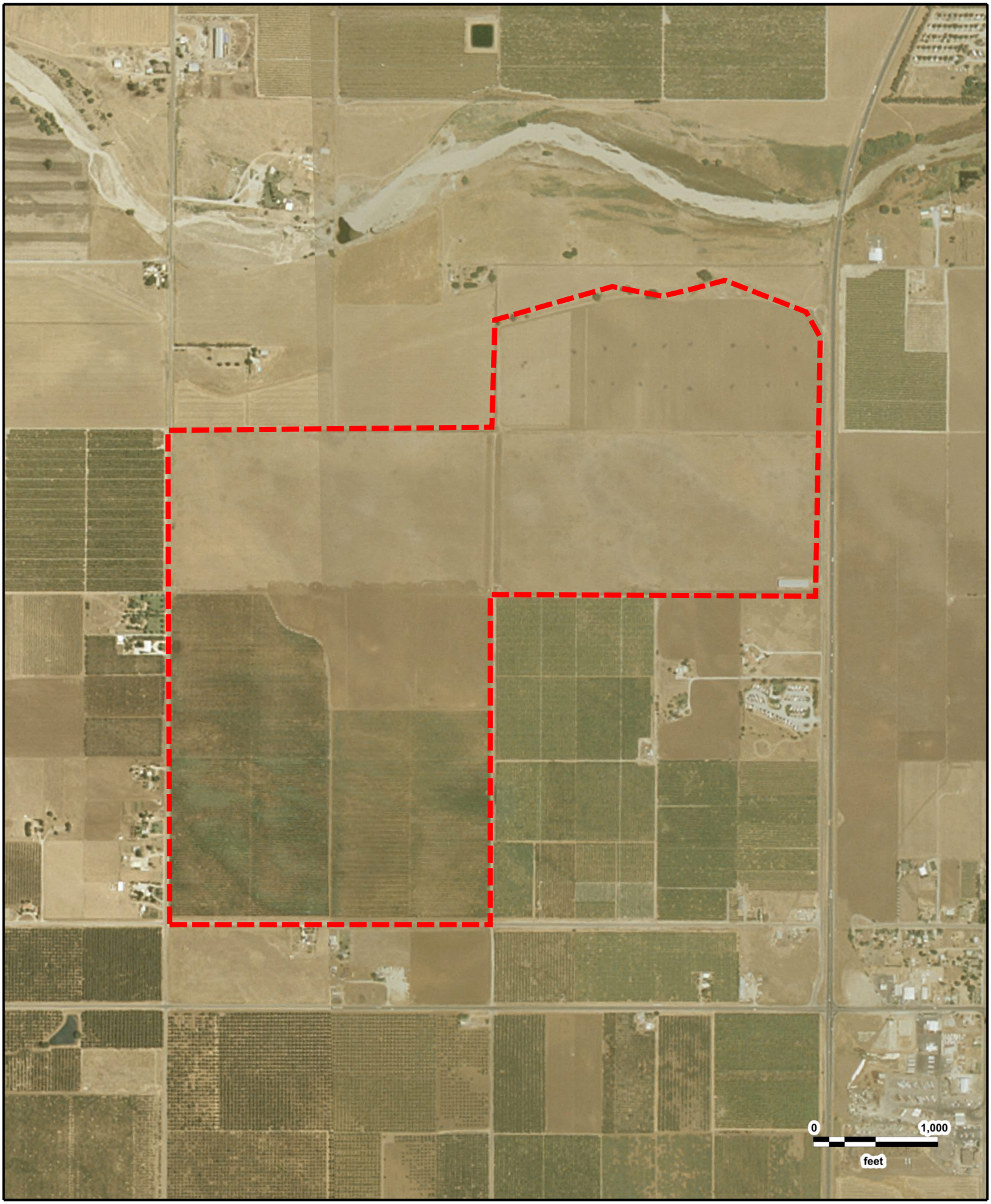


N
W E
S

Deer Creek - Tulare
USDA
2004

GeoSearch

JOB #: 239881 - 05/29/2018



N
W E
S

Deer Creek - Tulare
USDA
2003

GeoSearch

JOB #: 239881 - 05/29/2018

N
W E
S

Deer Creek - Tulare
USGS
09/04/1994

GeoSearch

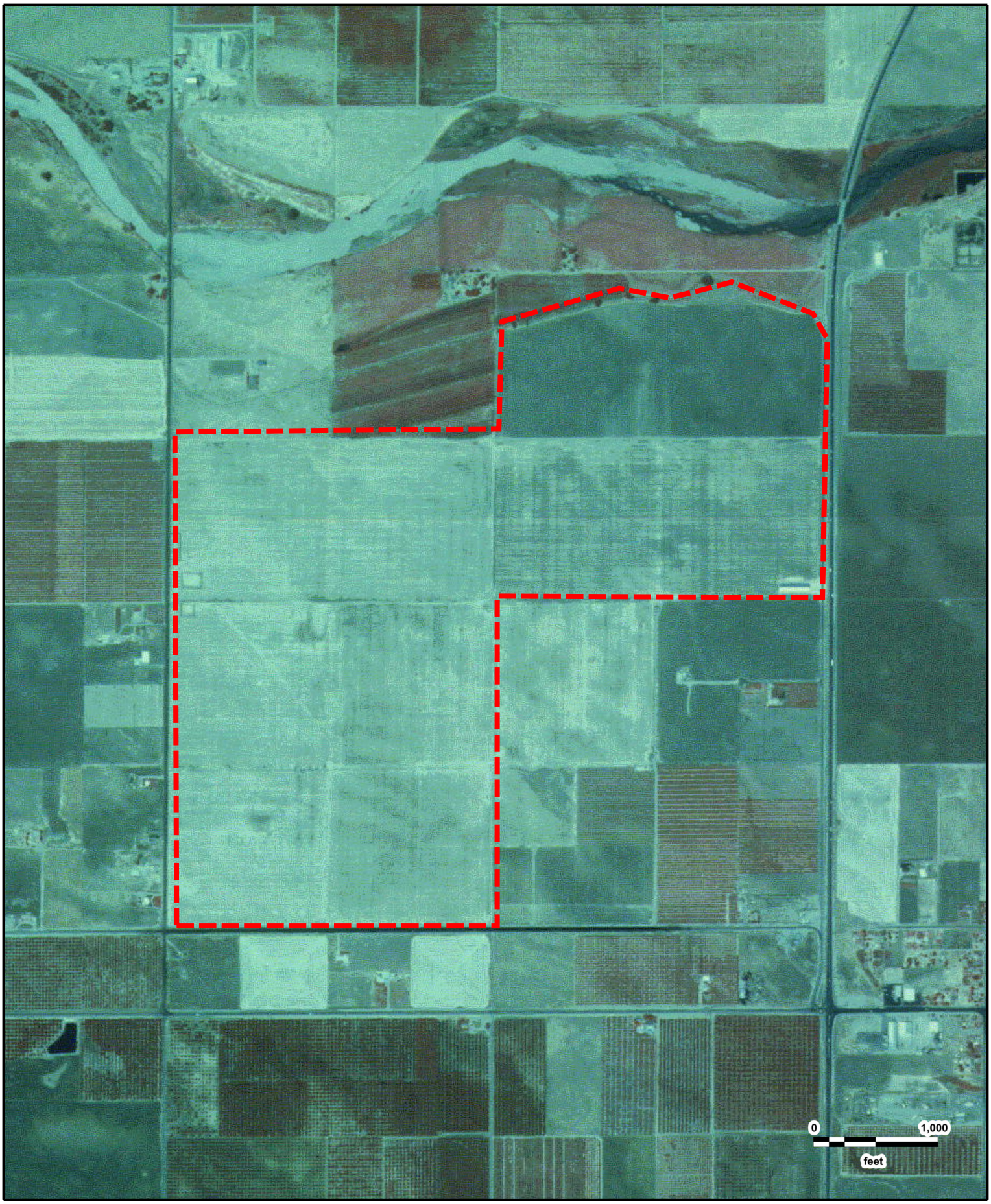
JOB #: 239881 - 05/29/2018

N
W E
S

Deer Creek - Tulare
USGS
06/09/1989

GeoSearch

JOB #: 239881 - 05/29/2018

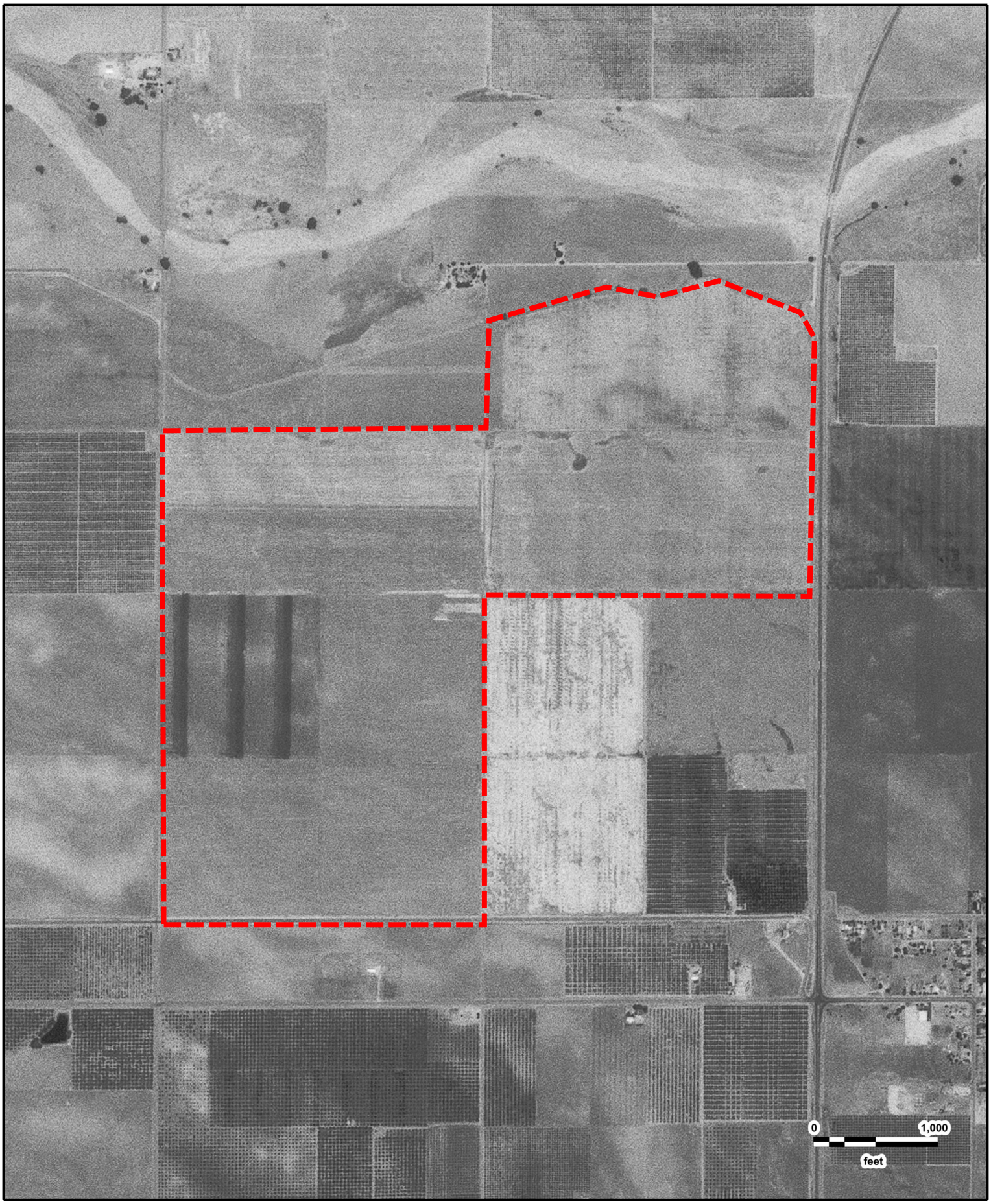


N
W E
S

Deer Creek - Tulare
USGS
06/16/1984

GeoSearch

JOB #: 239881 - 05/29/2018

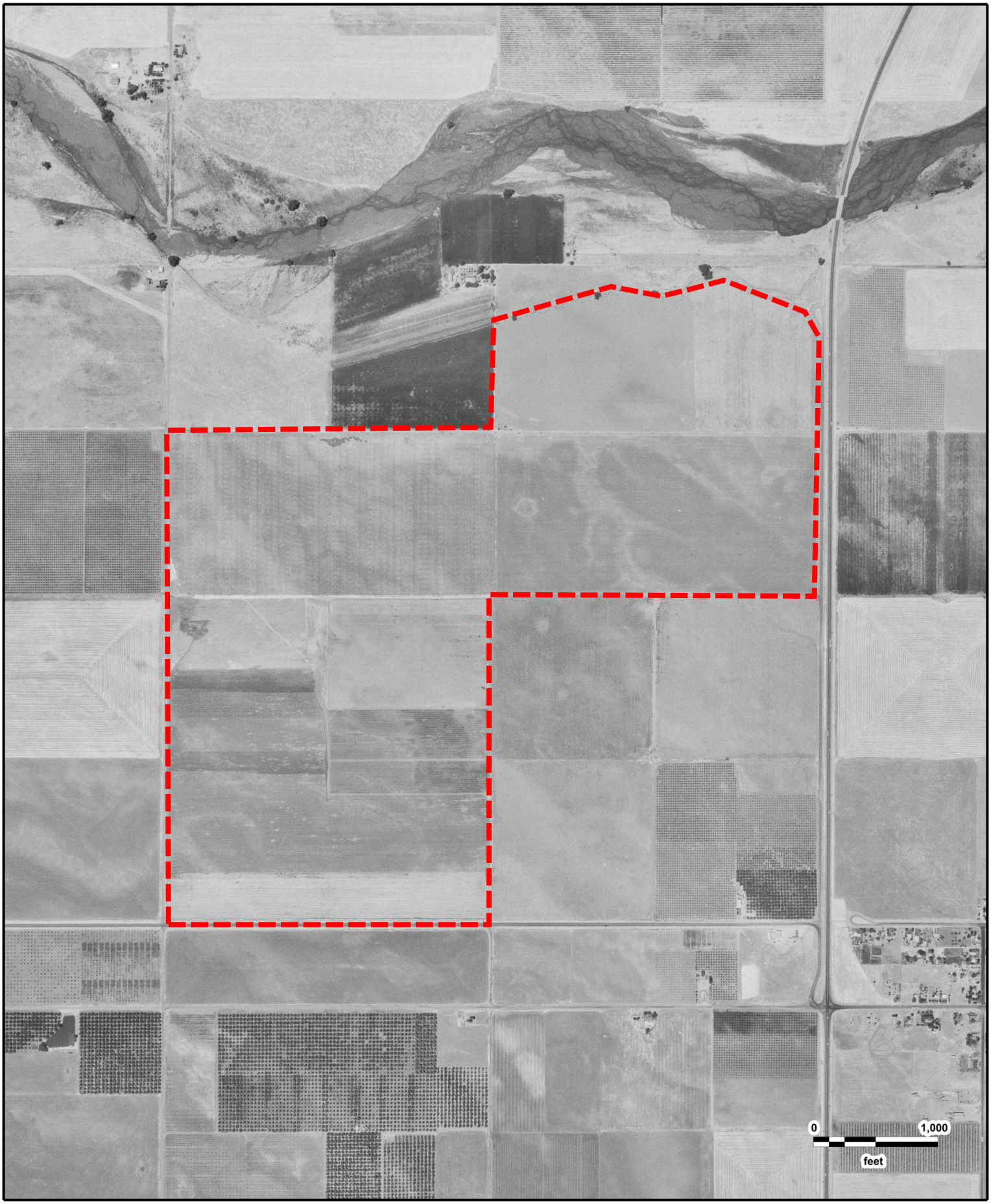


N
W E
S

Deer Creek - Tulare
USGS
06/02/1977

GeoSearch

JOB #: 239881 - 05/29/2018

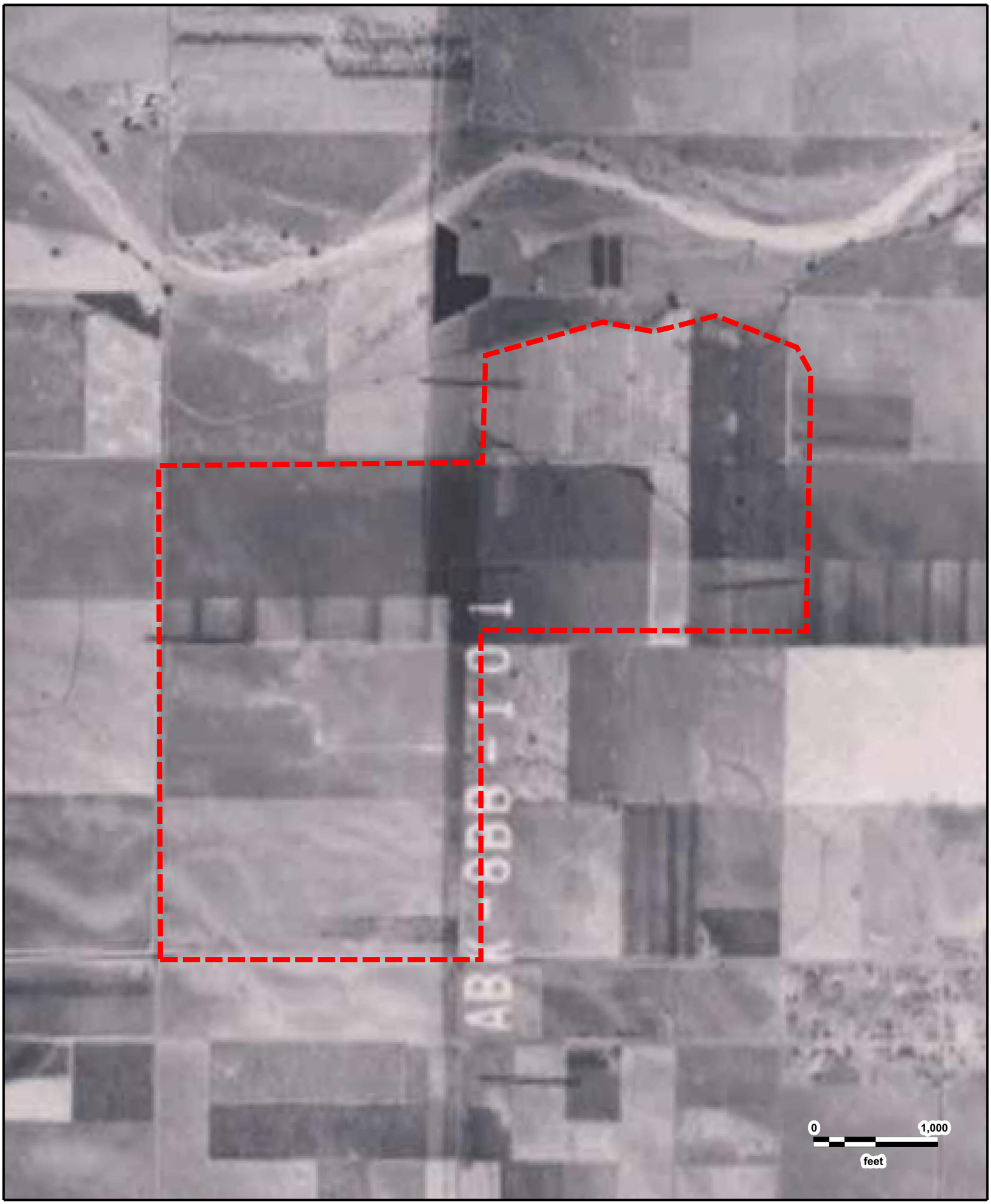


N
W E
S

Deer Creek - Tulare
USGS
07/15/1969

GeoSearch

JOB #: 239881 - 05/29/2018

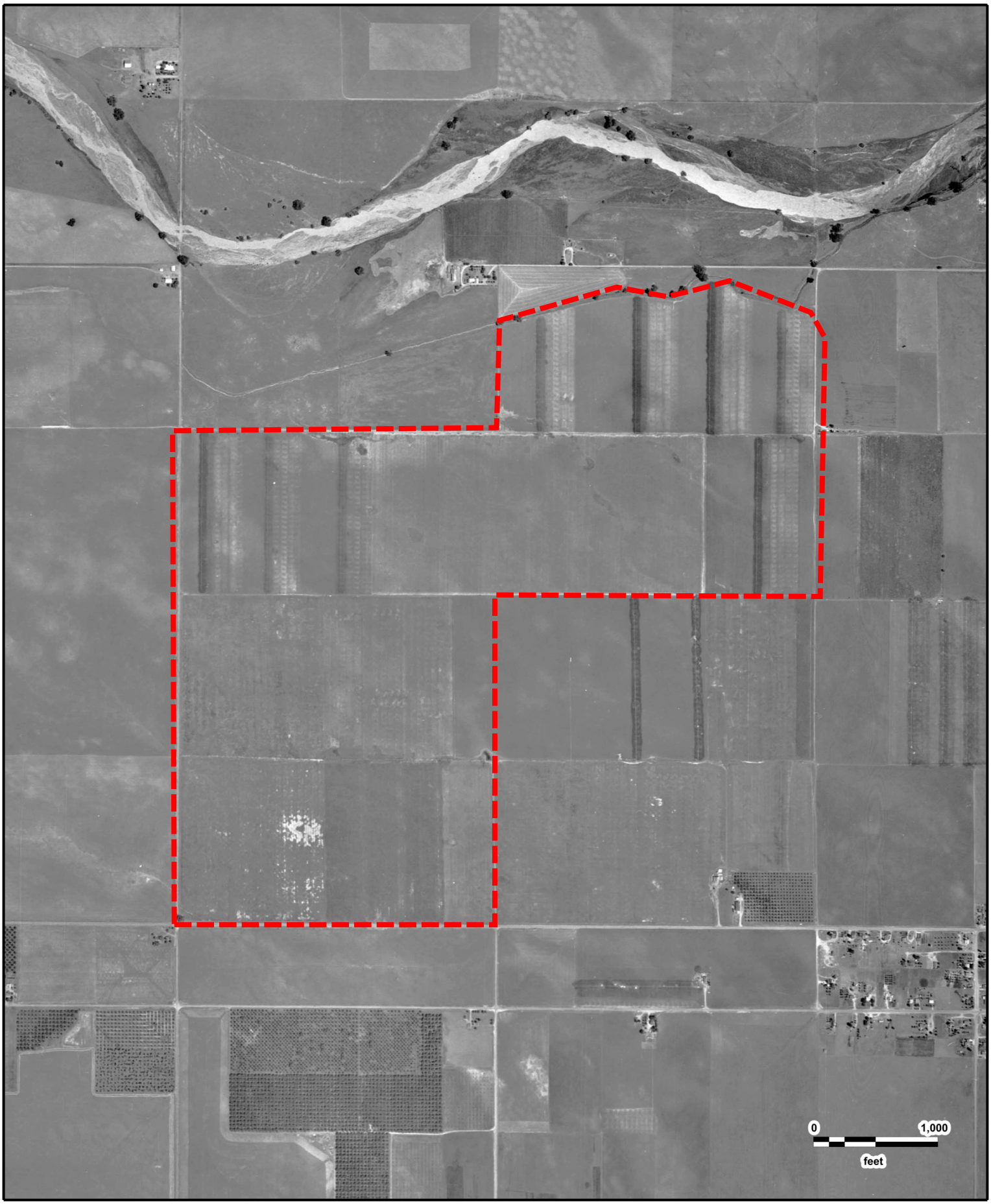


N
W E
S

Deer Creek - Tulare
ASCS
06/23/1961

GeoSearch

JOB #: 239881 - 05/29/2018

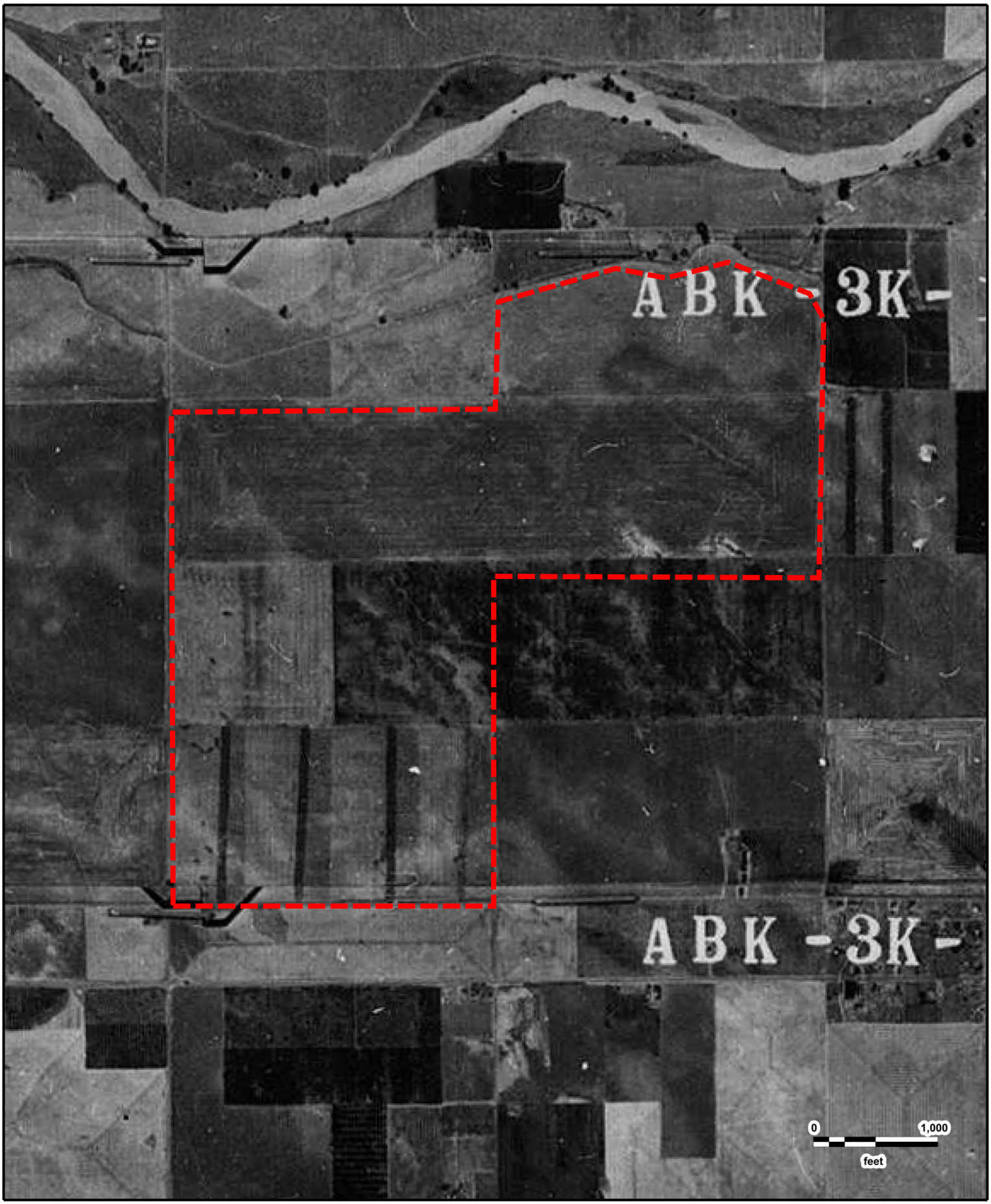


N
W E
S

Deer Creek - Tulare
ASCS
05/29/1956

GeoSearch

JOB #: 239881 - 05/29/2018

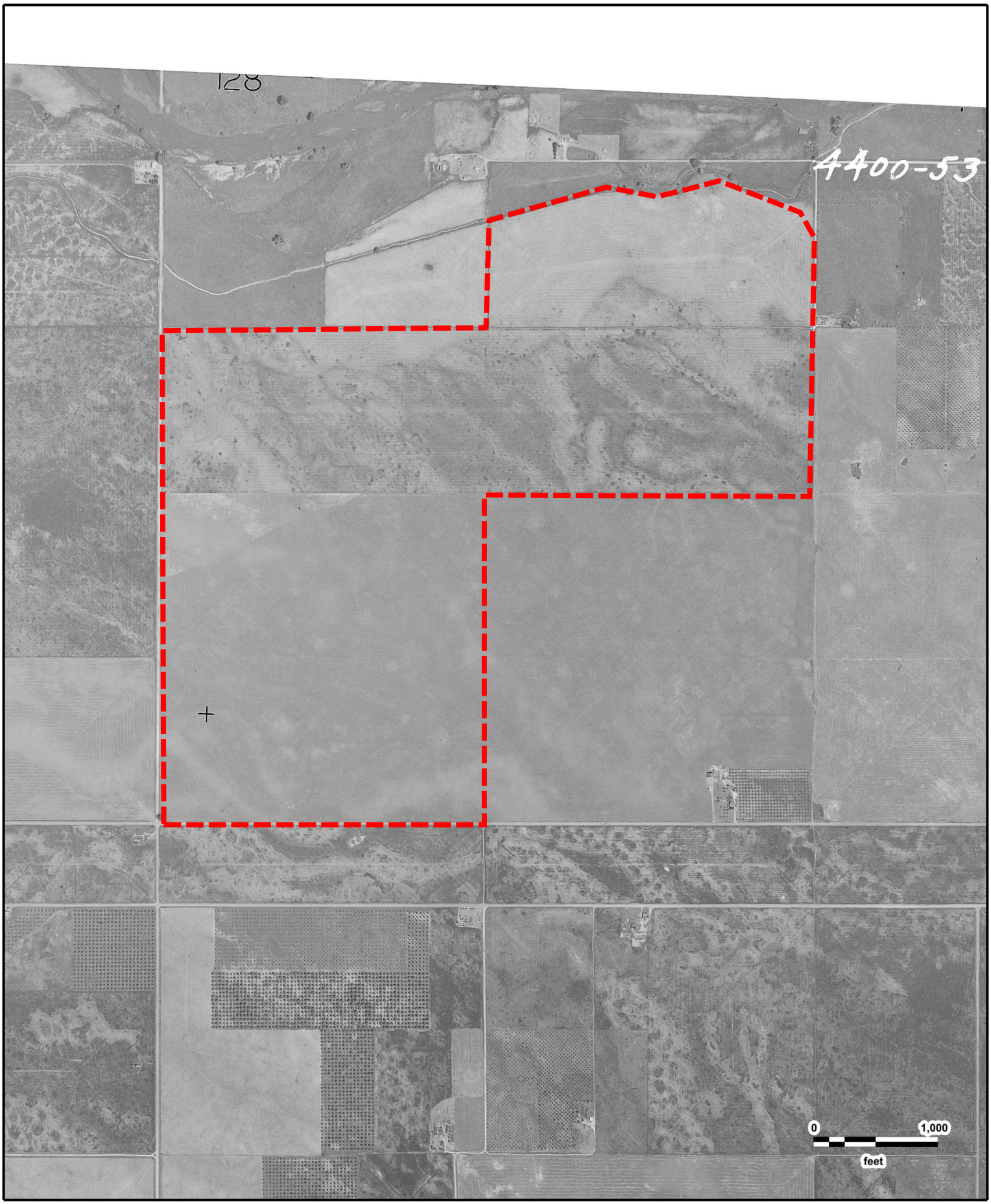


N
W E
S

Deer Creek - Tulare
ASCS
10/09/1952

GeoSearch

JOB #: 239881 - 05/29/2018



N
W E
S

Deer Creek - Tulare
FAIRCHILD
1937

GeoSearch

JOB #: 239881 - 05/29/2018

GeoSearch

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Historical Topographic Maps

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239876
Project #: D170464.00
Date: 5/27/2018

Target Property Summary

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare, California 93270

USGS Quadrangle: ***Ducor***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-119.071602169, 35.964257230), (-119.062804524, 35.964257230), (-119.062804524, 35.971516505), (-119.053878132, 35.971481773), (-119.053749386, 35.977177582), (-119.054135624, 35.977733249), (-119.056367222, 35.978427827), (-119.057354275, 35.978219454), (-119.058083836, 35.978080538), (-119.059457127, 35.978288912), (-119.062675778, 35.977559603), (-119.062761608, 35.975197988), (-119.071645085, 35.975128528)

Topographic Map Summary

Date	Quadrangle	Scale
2012	Ducor, CA	1" = 2000'
1952 PHOTOREVISED 1969	Ducor, CA	1" = 2000'
1952	Ducor, CA	1" = 2000'
1942	Terra Bella, CA	1" = 5208'
1927	Ducor, CA	1" = 2640'

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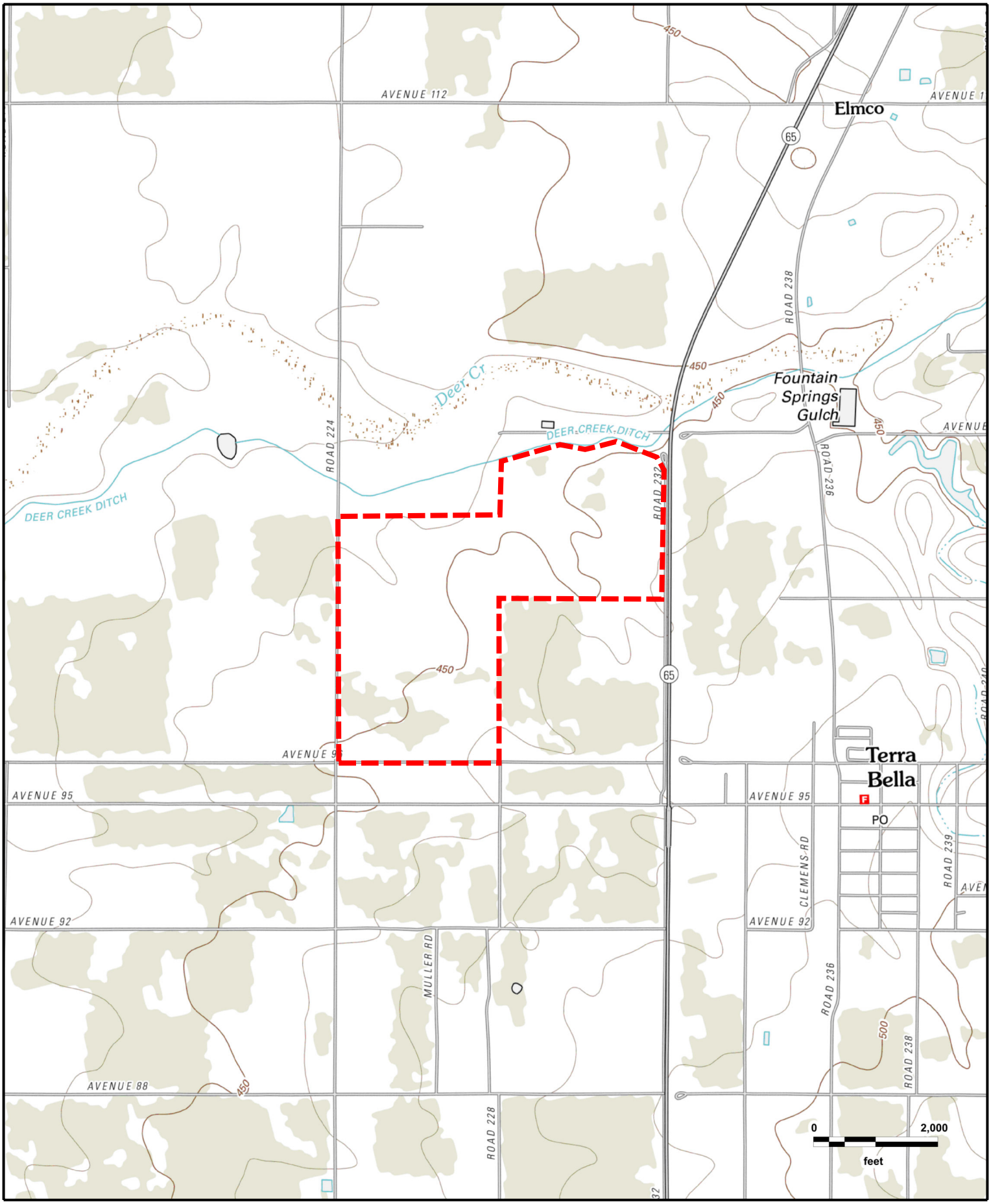
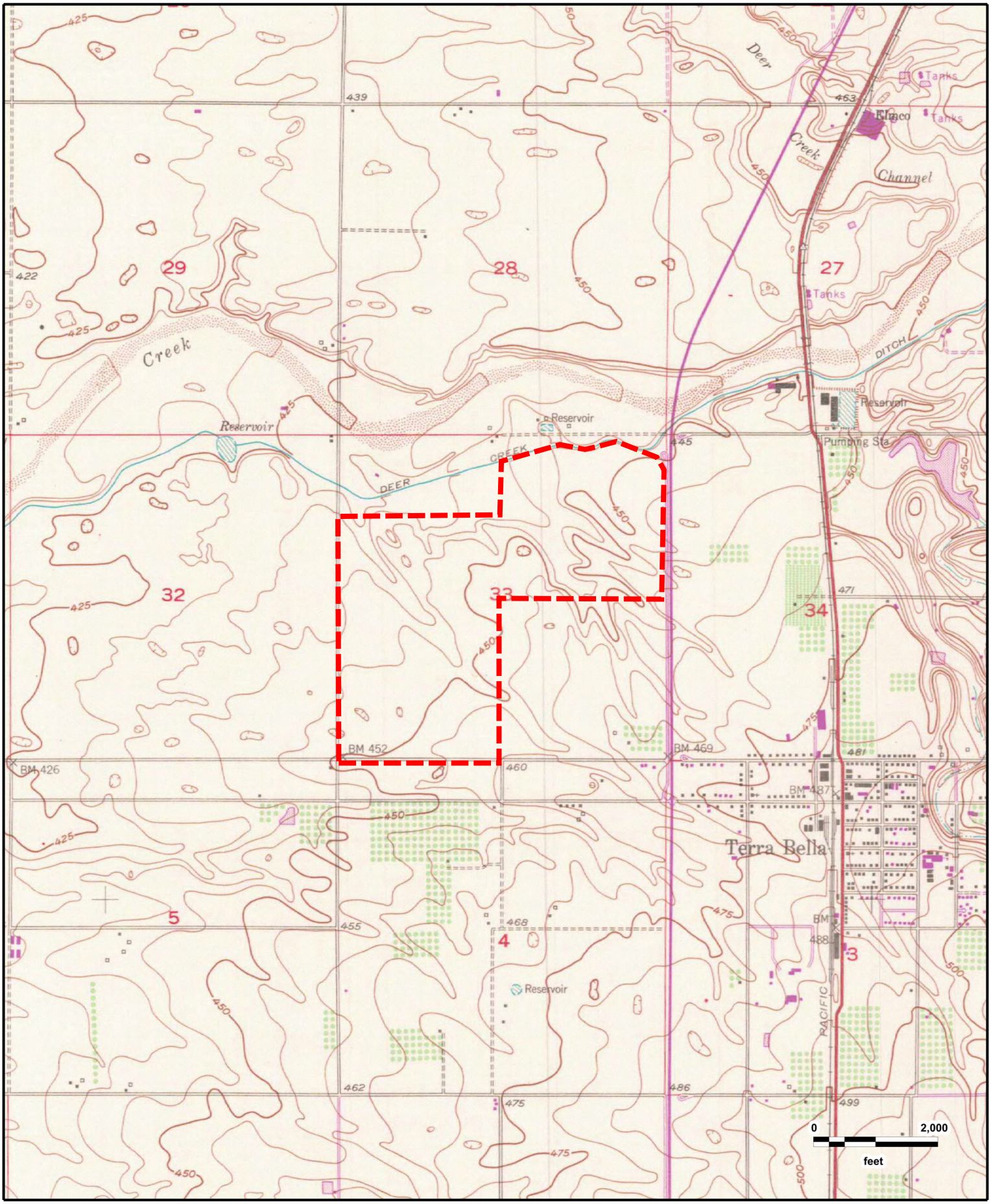


N
W E
S

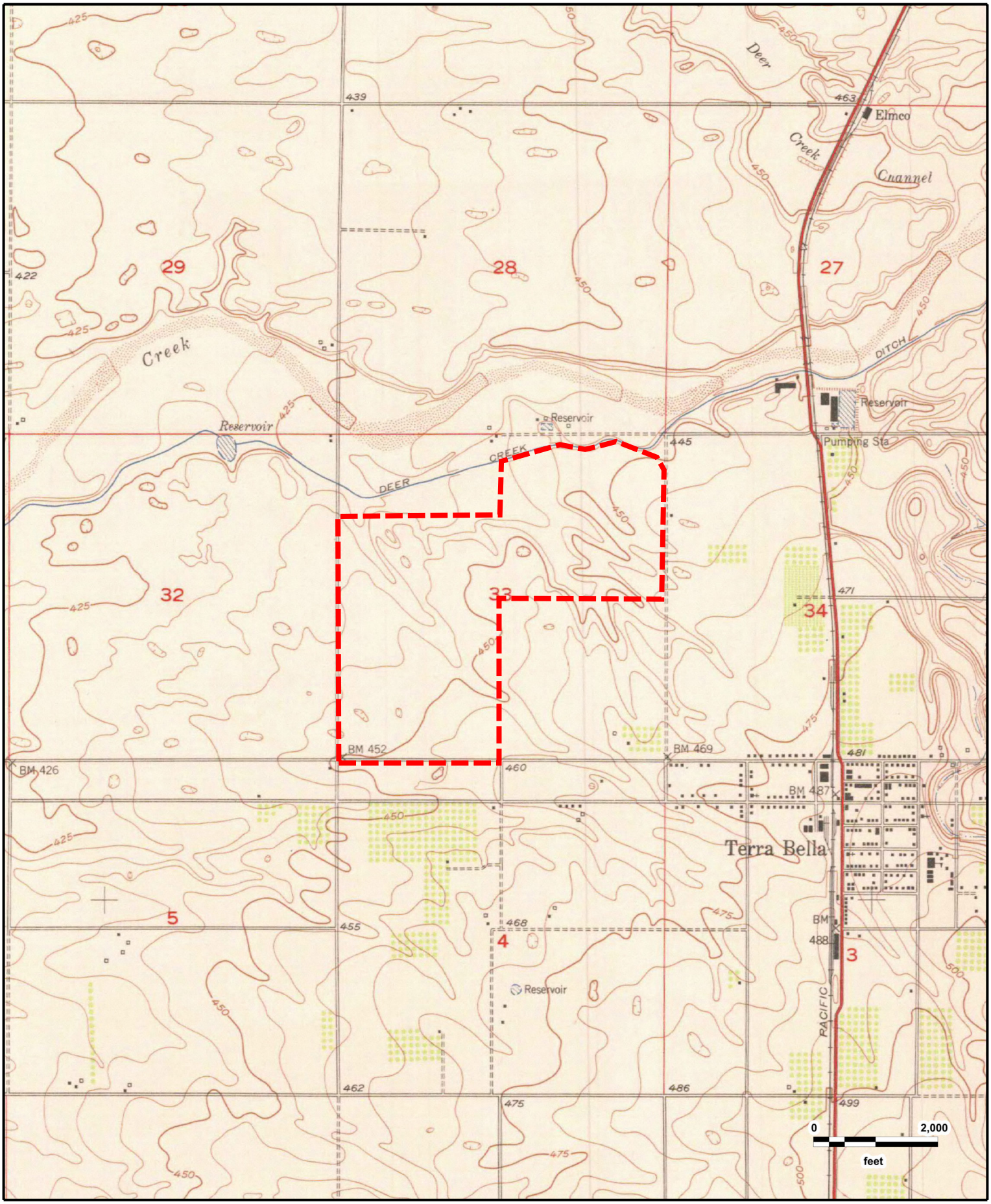
Deer Creek - Tulare
Ducor, CA (2012)

GeoSearch

JOB #: 239876 - 05/27/2018



JOB #: 239876 - 05/27/2018

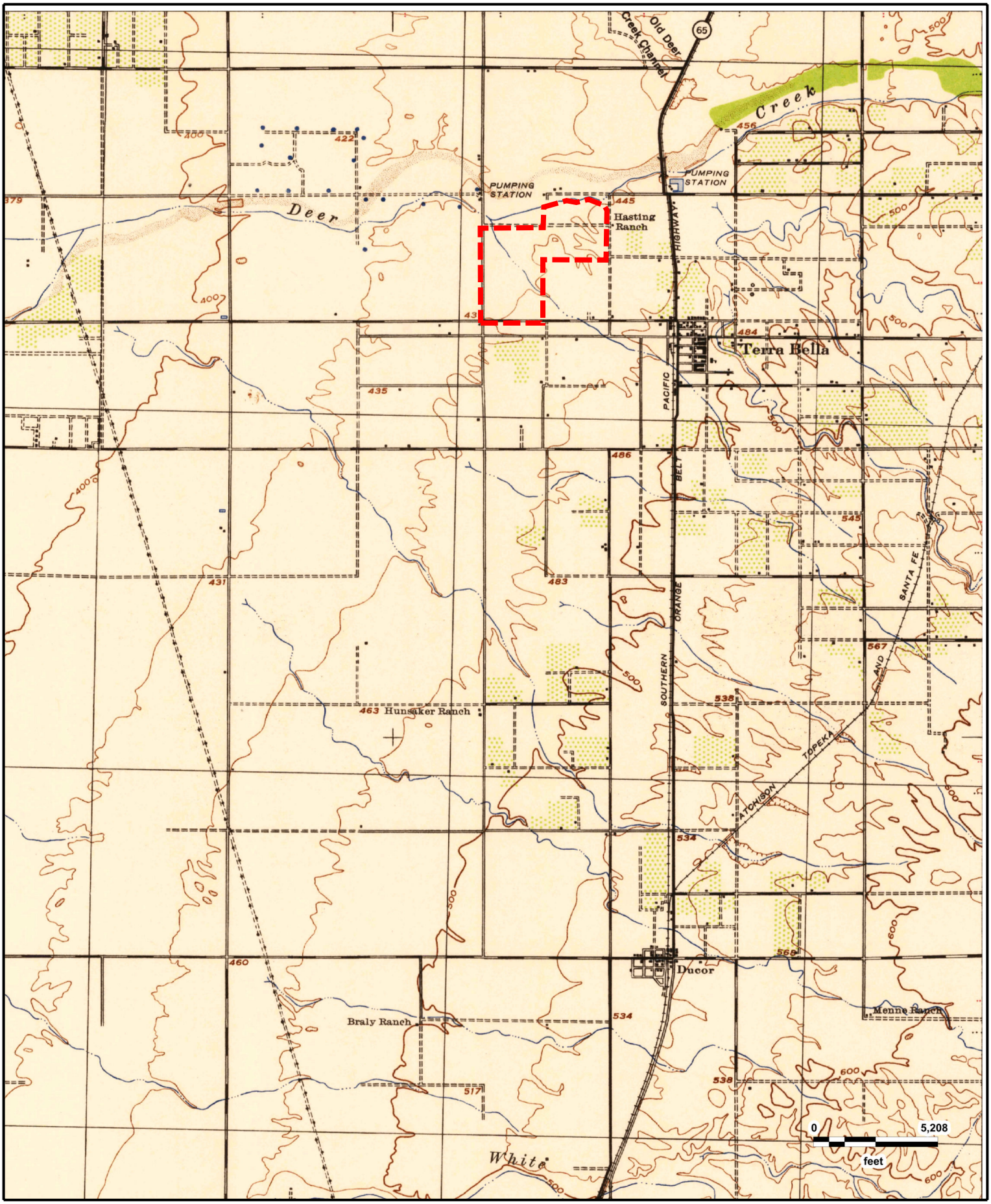


N
W E
S

Deer Creek - Tulare
Ducor, CA (1952)

GeoSearch

JOB #: 239876 - 05/27/2018

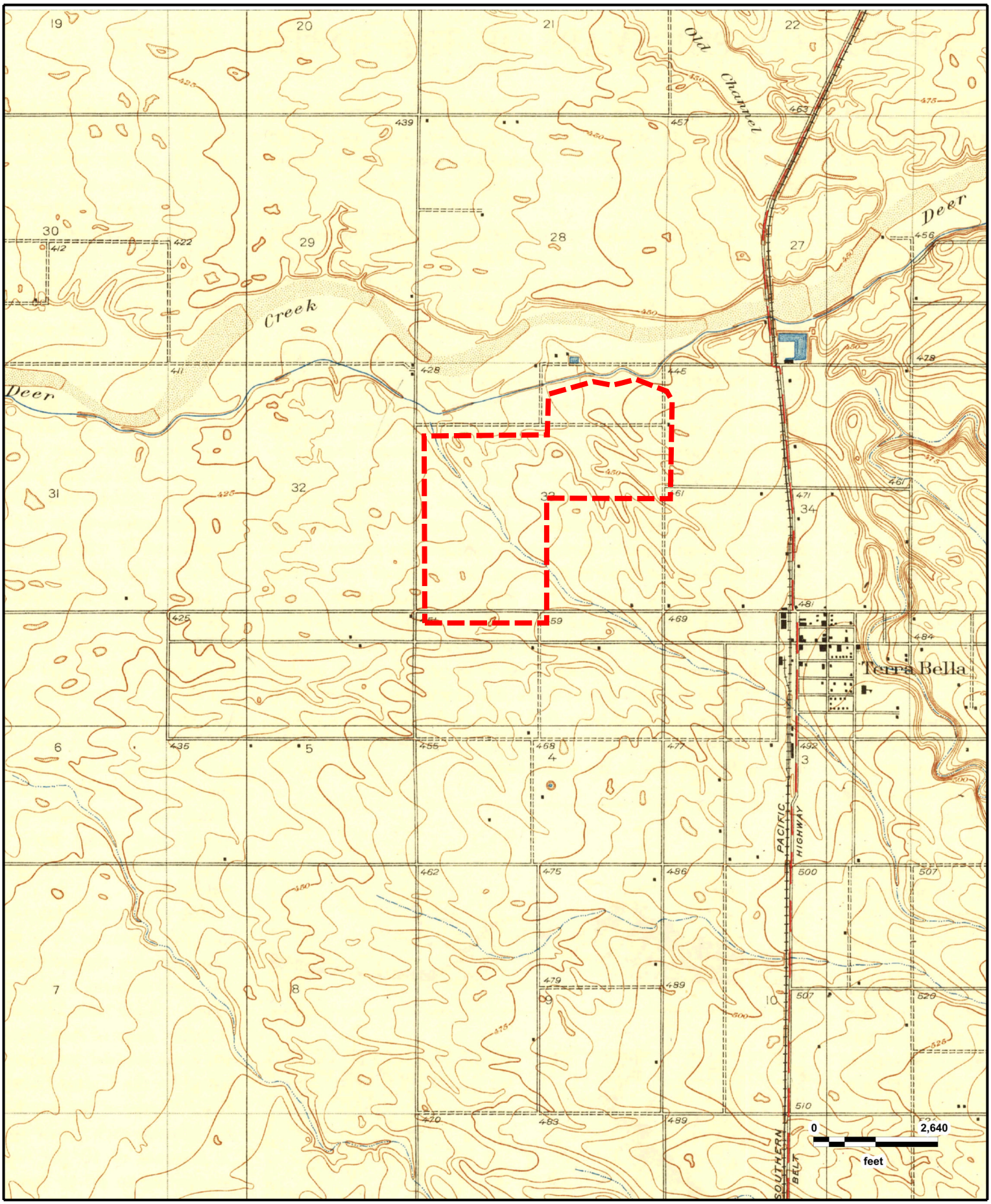


N
W E
S

Deer Creek - Tulare
Terra Bella, CA (1942)

GeoSearch

JOB #: 239876 - 05/27/2018



N
W E
S

Deer Creek - Tulare
Ducor, CA (1927)

GeoSearch

JOB #: 239876 - 05/27/2018

GeoSearch
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FIM Abstract

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239879
Project #: D170464.00
Date: 05/29/2018

phone: 888-396-0042 · fax: 512-472-9967 · www.geo-search.com

TARGET PROPERTY SUMMARY

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

USGS Quadrangle: ***Ducor, CA***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-119.071602, 35.964257), (-119.062805, 35.964257), (-119.062805, 35.971517), (-119.053878, 35.971482), (-119.053749, 35.977178), (-119.054136, 35.977733), (-119.056367, 35.978428), (-119.057354, 35.978219), (-119.058084, 35.978081), (-119.059457, 35.978289), (-119.062676, 35.977560), (-119.062762, 35.975198), (-119.071645, 35.975129), (-119.071602, 35.964257)

County/Parish Covered:
Tulare (CA)

Zipcode(s) Covered:
Porterville CA: 93257
Terra Bella CA: 93270

State(s) Covered:
CA

****Target property is located in Radon Zone 2.***
Zone 2 areas have a predicted average indoor radon screening level between 2 and 4 pCi/L (picocuries per liter).

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GeoSearch FIM

Date: 05/29/18

GS Job Number: 109067

Company Name: Environmental Science Assoc-Irvine

Project Number: D170464.00

Site Information: Deer Creek - Tulare
Terra Bella Avenue, Terra Bella, Tulare, California, 93270

The collections of fire insurance maps listed below were reviewed according to the site information supplied by client. Based on the information provided, no coverage is available.

Library of Congress
University Publications of America
Other Libraries (universities, state, local, etc.).

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GeoSearch
On time. On target. In touch.™

GeoPlus Oil & Gas Report

Satellite view

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239878
Project #: D170464.00
Date: 05/29/2018

Table of Contents

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Target Property Summary

Target Property Information

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, California 93270

Coordinates
Area

USGS Quadrangle
Ducor, CA

Geographic Coverage Information

County/Parish: Tulare (CA)
ZipCode(s):
Porterville CA: 93257
Terra Bella CA: 93270

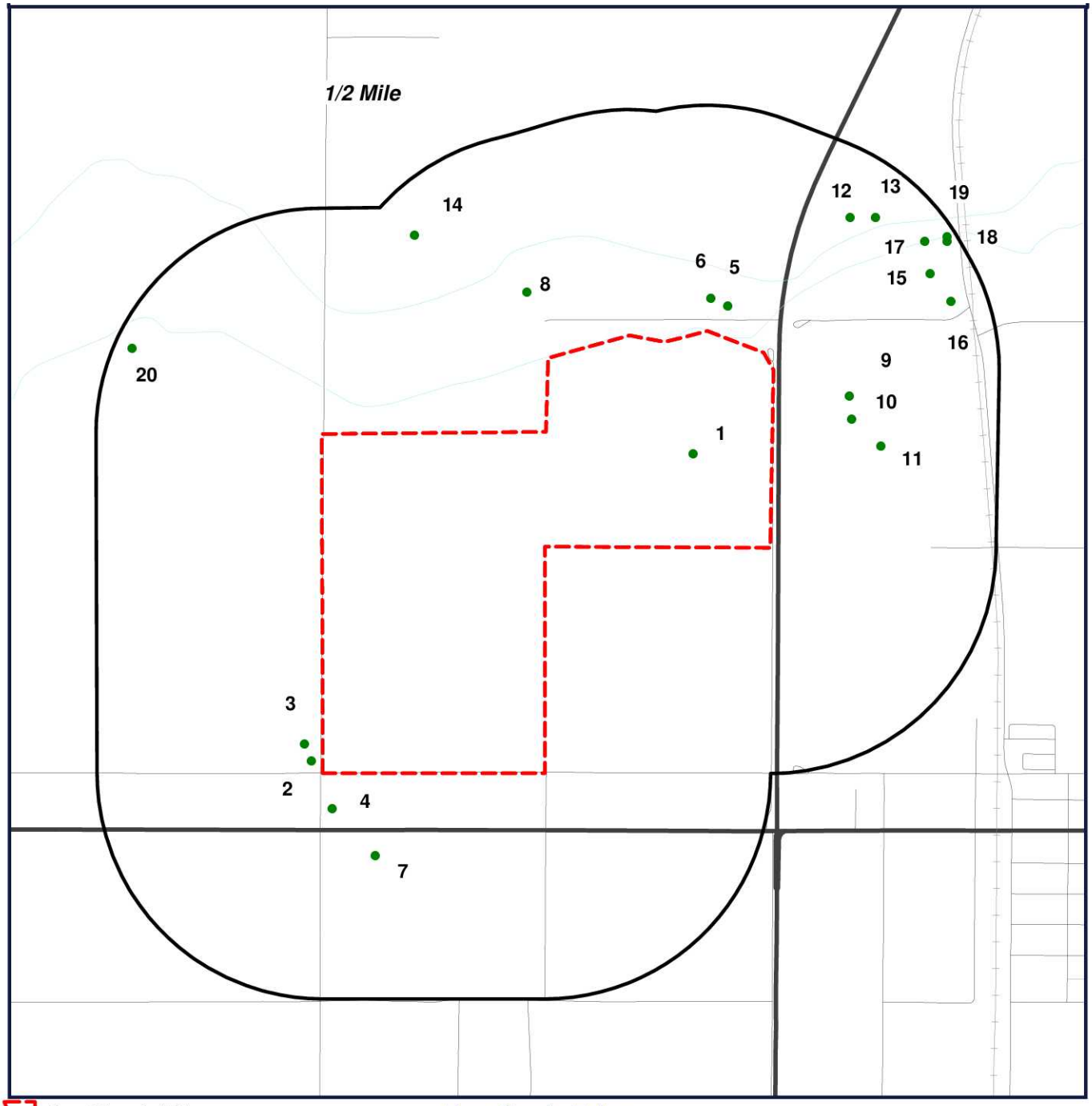
Database Radius Summary

STATE (CA) LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
OG	0.5000	1	6	5	11	NS	NS	23
SUB-TOTAL		1	6	5	11	0	0	23
TOTAL		1	6	5	11	0	0	23

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

OIL & GAS MAP



Click here to access Satellite view

Located Sites Summary

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address
1	OG	10700343	TP		TULARE COUNTY, TERRA BELLA, CO 93270
2	OG	10720163	0.025 mi. W (132 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
3	OG	10700342	0.04 mi. W (211 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
4	OG	10720157	0.063 mi. S (333 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
5	OG	10700337	0.082 mi. NNE (433 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
5	OG	10700338	0.095 mi. NNE (502 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
6	OG	10700339	0.088 mi. N (465 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
7	OG	10700389	0.166 mi. S (876 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
8	OG	10700336	0.169 mi. NNW (892 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
9	OG	10700349	0.169 mi. E (892 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
10	OG	10700347	0.174 mi. E (919 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
11	OG	10700346	0.24 mi. E (1267 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
12	OG	10700171	0.369 mi. NE (1948 ft.)		TULARE COUNTY, PORTERVILLE, CO 93257
13	OG	10700170	0.401 mi. NE (2117 ft.)		TULARE COUNTY, PORTERVILLE, CO 93257
14	OG	10720016	0.413 mi. NW (2181 ft.)		TULARE COUNTY, PORTERVILLE, CO 93257
15	OG	10720170	0.415 mi. ENE (2191 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
16	OG	10700137	0.428 mi. ENE (2260 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
17	OG	10720150	0.443 mi. ENE (2339 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
17	OG	10720228	0.466 mi. ENE (2460 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
18	OG	10700172	0.484 mi. ENE (2556 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
18	OG	10720149	0.462 mi. ENE (2439 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270
19	OG	10720229	0.49 mi. ENE (2587 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270

Located Sites Summary

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address
20	OG	10720156	0.467 mi. WNW (2466 ft.)		TULARE COUNTY, TERRA BELLA, CO 93270

Oil & Gas Well Report

MAP ID	API #	WELL #	OPERATOR NAME	LEASE NUMBER	SPUD DATE	W.D.	WELL TYPE	STR	LATITUDE	LONGITUDE
1	10700343	"HENDERSON" 1	LAWRENCE P. REISCHMAN, OPR.	HENDERSON	NR	NR	PLUGGED AND ABANDONED	T 22S S33	36	-119
2	10720163	"PACK" 1	MEREL COMPANY INC.	PACK	10/13/1980	NR	PLUGGED AND ABANDONED	T 22S S32	36	-119
3	10700342	"CROW" 1	AMERICAN COPPER COMPANY	CROW	NR	NR	PLUGGED AND ABANDONED	T 22S S32	36	-119
4	10720157	"PHELAN" 1	KEM ENTERPRISE, INC.	PHELAN	NR	NR	ACTIVE	T 23S S4	36	-119
5	10700337	"LARSEN" 1	LARSEN OIL CO.	LARSEN	NR	NR	PLUGGED AND ABANDONED	T 22S S28	36	-119
5	10700338	"LARSON & ASSOCIATES" 1	MICHAEL CANNATA	LARSON & ASSOCIATES	NR	NR	PLUGGED AND ABANDONED	T 22S S28	36	-119
6	10700339	"LARSON & ASSOCIATES" 2	MICHAEL CANNATA	LARSON & ASSOCIATES	NR	NR	PLUGGED AND ABANDONED	T 22S S28	36	-119
7	10700389	"AMERICAN-PADULA" 1	AMERICAN COPPER COMPANY	AMERICAN-PADULA	NR	NR	PLUGGED AND ABANDONED	T 23S S4	36	-119
8	10700336	"TERRA BELLA HASTINGS" 1	ARCO WESTERN ENERGY	TERRA BELLA HASTINGS	NR	NR	PLUGGED AND ABANDONED	T 22S S28	36	-119
9	10700349	"JANIS" 1	VERDE OIL CO.	JANIS	5/30/1954	NR	PLUGGED AND ABANDONED	T 22S S34	36	-119
10	10700347	3	ROETNOR OIL CO., LTD.	NOT REPORTED	NR	NR	PLUGGED AND ABANDONED	T 22S S34	36	-119
11	10700346	1	ROETNOR OIL CO., LTD.	NOT REPORTED	NR	NR	PLUGGED AND ABANDONED	T 22S S34	36	-119
12	10700171	"MONTGOMERY" 2	TERRA BELLA, LTD.	MONTGOMERY	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
13	10700170	"MONTGOMERY" 1	TERRA BELLA, LTD.	MONTGOMERY	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
14	10720016	"MCKAY" 1-28	CHEVRON U.S.A. INC.	MCKAY	NR	NR	PLUGGED AND ABANDONED	T 22S S28	36	-119
15	10720170	"D. C. UNIT" 3	HERITAGE OIL COMPANY	D. C. UNIT	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
16	10700137	"SHORT" 1	THE JACOBSON-IMPERIAL OIL CO.	SHORT	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
17	10720150	"D. C. UNIT" 2	HERITAGE OIL COMPANY	D. C. UNIT	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
17	10720228	"D. C. UNIT" 4	DENNIS C. FRANKS	D. C. UNIT	NR	NR	ACTIVE	T 22S S27	36	-119
18	10700172	"HORNBROOK" 1	LEROY TITHERINGTON & RICHARD L. HERNDON	HORNBROOK	NR	NR	PLUGGED AND ABANDONED	T 22S S27	36	-119
18	10720149	"D. C. UNIT" 1	DENNIS C. FRANKS	D. C. UNIT	NR	NR	ACTIVE	T 22S S27	36	-119
19	10720229	"D. C. UNIT" 5	DENNIS C. FRANKS	D. C. UNIT	NR	NR	ACTIVE	T 22S S27	36	-119
20	10720156	"TBID" 1	MEREL COMPANY INC.	TBID	8/10/1980	NR	PLUGGED AND ABANDONED	T 22S S32	36	-119

OG Oil and Gas

VERSION DATE: 11/26/17

This oil, gas, and geothermal well information database is maintained by the California Department of Conservation's Division of Oil, Gas, and Geothermal Resources. The database information may change without notice. The Department of Conservation makes no warranties, whether expressed or implied, as to the suitability of the product for any particular purpose. Any use of this information is at the user's own risk.

Appendix C

Physical Setting Report and Water Well Report

ESA

GeoSearch
On time. On target. In touch.™

GeoPlus Physical Setting Maps

Satellite view

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239880
Project #: D170464.00
Date: 05/29/2018

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Disclaimer

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Target Property Summary

Target Property Information

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, California 93270

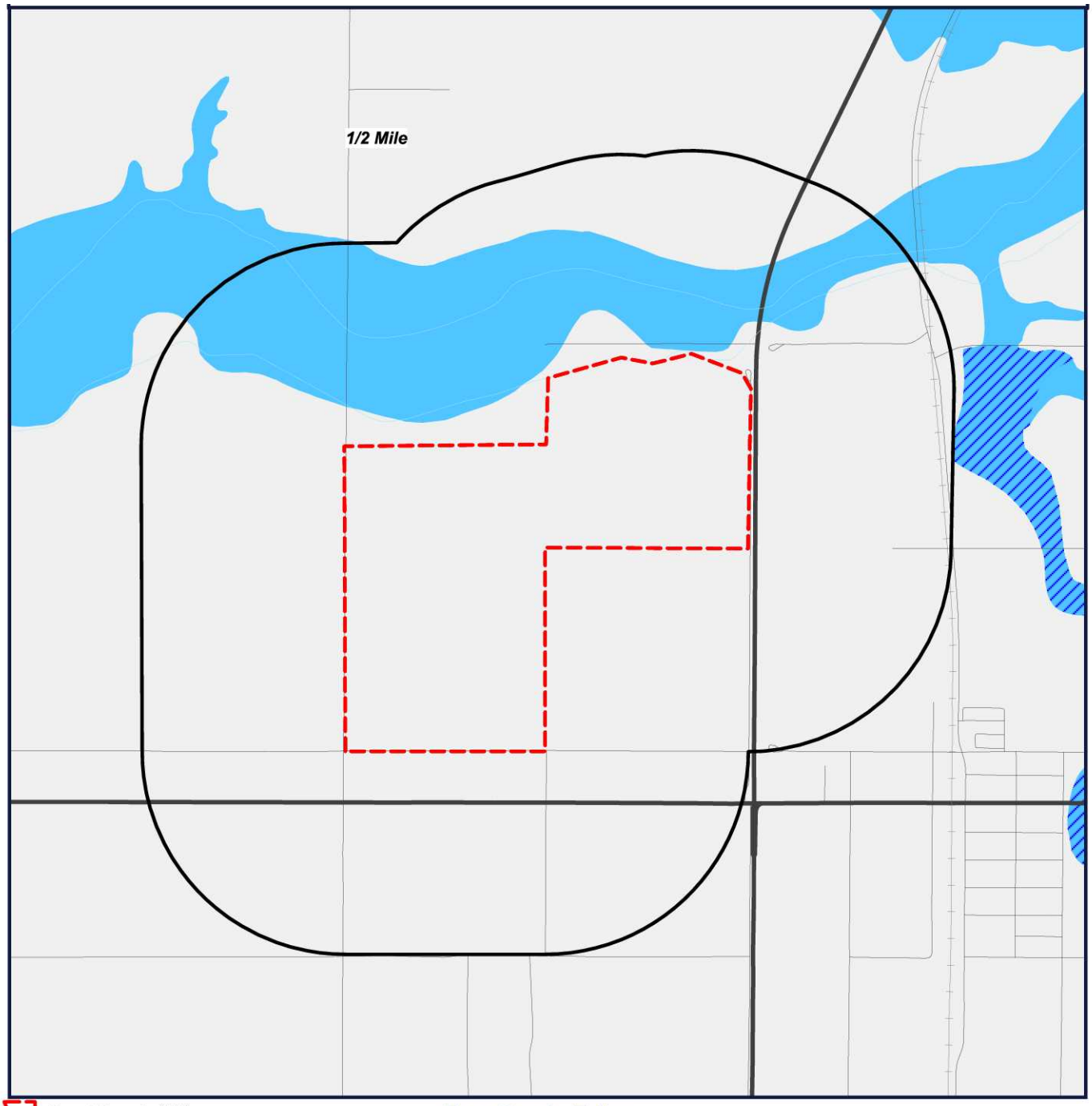
Coordinates
Area

USGS Quadrangle
Ducor, CA

Geographic Coverage Information

County/Parish: Tulare (CA)
ZipCode(s):
Porterville CA: 93257
Terra Bella CA: 93270

FEMA Map



Target Property (TP)

ZONE A	ZONE D
ZONE AE	ZONE X
ZONE AH	AREA NOT INCLUDED
ZONE A0	OPEN WATER
ZONE AR	NDA - DIGITAL DATA NOT AVAILABLE
ZONE V	
ZONE VE	

Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

Letter of map revision date: 12/27/2016
Latest study effective date: 11/04/2016
Panel #: 06029C0225E

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

[Click here to access Satellite view]

FEMA Report

FEMA - Federal Emergency Management Agency

The National Flood Hazard Layer (NFHL) data used in this report is derived from the Federal Emergency Management Agency. The NFHL dataset is a compilation of effective Flood Insurance Rate Map (FIRM) databases (a collection of the digital data that are used in GIS systems for creating new Flood Insurance Rate Maps) and Letters of Map Change (Letters of Map Amendment and Letters of Map Revision only) that create a seamless GIS data layer for United States and its territories. The NFHL is updated as new study or LOMC data becomes effective. Note: Currently, not all areas have modernized FIRM database data available. As a result, users may need to refer to the effective Flood Insurance Rate Map for effective flood hazard information. This data was provided by the Federal Emergency Management Agency's Map Service Center in November of 2013.

FEMA Flood Zone Definitions within Search Radius

A	Zone A

Areas subject to inundation by the 1-percent-annual-chance flood event. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.

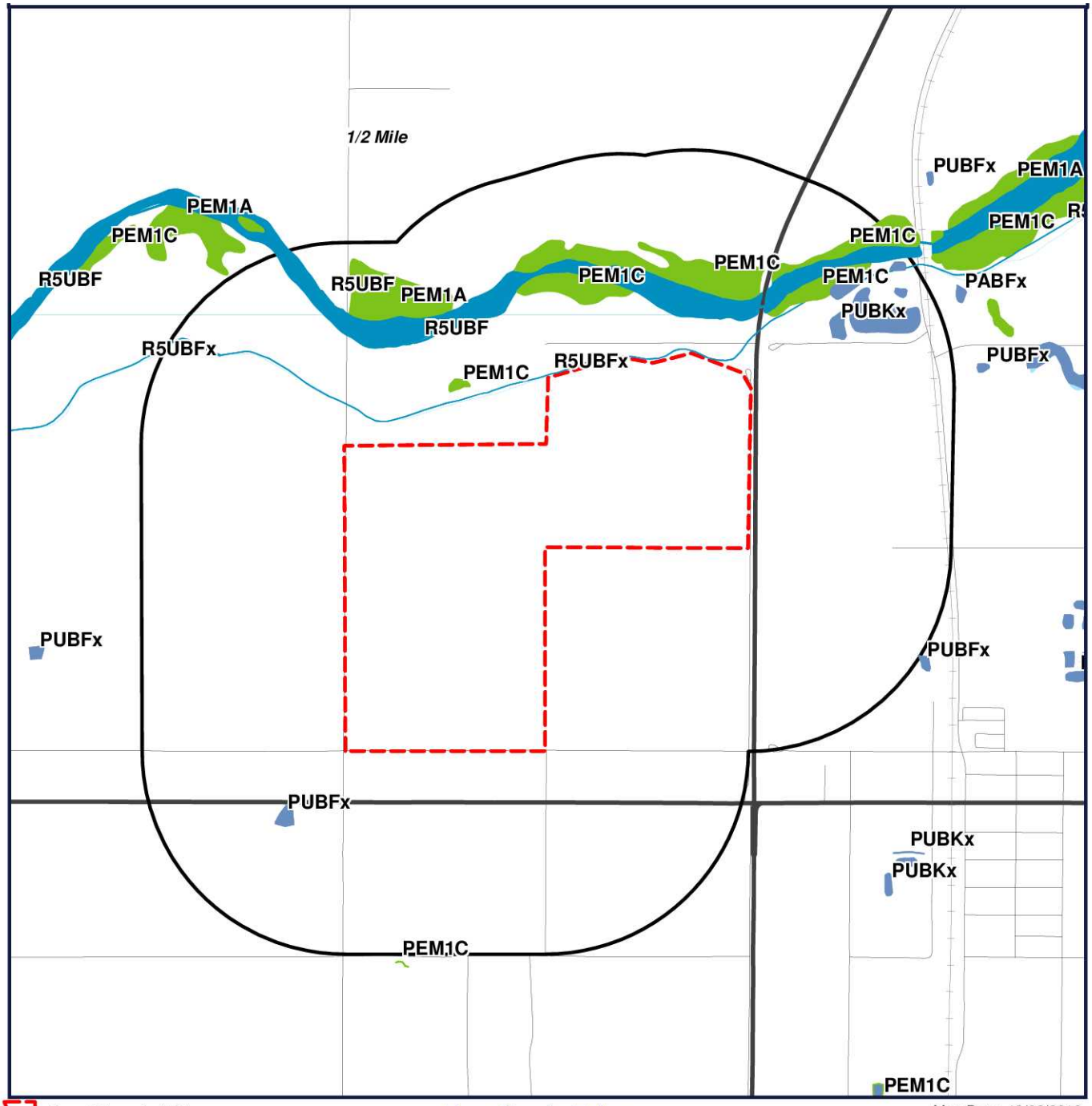
AE	Zone AE

Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. BFEs are shown within these zones. (Zone AE is used on new and revised maps in place of Zones A1–A30.)

X	Zone X

An area that is determined to be outside the 100 and 500 year floodplains.

NWI Map



Target Property (TP)

ESTUARINE AND MARINE DEEPWATER
ESTUARINE AND MARINE WETLAND
FRESHWATER EMERGENT WETLAND
FRESHWATER FORESTED/ SHRUB WETLAND
LAKE
OTHER
RIVERINE
FRESHWATER POND
NDA - DIGITAL DATA NOT AVAILABLE

Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

Map Date: 12/02/2016

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

[Click here to access Satellite view]

NWI Report

NWI - National Wetlands Inventory

The US NWI digital data bundle is a set of records of wetlands location and classification as defined by the U.S. Fish & Wildlife Service. This dataset is one of a series available in 7.5 minute by 7.5 minute blocks containing ground planimetric coordinates of wetlands point, line, and area features and wetlands attributes. When completed, the series will provide coverage for all of the contiguous United States, Hawaii, Alaska, and U.S. protectorates in the Pacific and Caribbean. The digital data as well as the hardcopy maps that were used as the source for the digital data are produced and distributed by the U.S. Fish & Wildlife Service's National Wetlands Inventory project. Currently, this data is only available in select counties throughout the United States.

NWI Definitions within Search Radius

PEM1A

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **TEMPORARILY FLOODED**

PEM1C

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **SEASONALLY FLOODED**

PUBFx

SYSTEM: **PALUSTRINE**
CLASS: **UNCONSOLIDATED BOTTOM**
SPECIAL MODIFIER: **EXCAVATED**

PUBKx

SYSTEM: **PALUSTRINE**
CLASS: **UNCONSOLIDATED BOTTOM**
SPECIAL MODIFIER: **EXCAVATED**

R4SBC

SYSTEM: **RIVERINE**
SUBSYSTEM: **INTERMITTENT**
CLASS: **STREAMBED**
WATER REGIME: **SEASONALLY FLOODED**

R5UBF

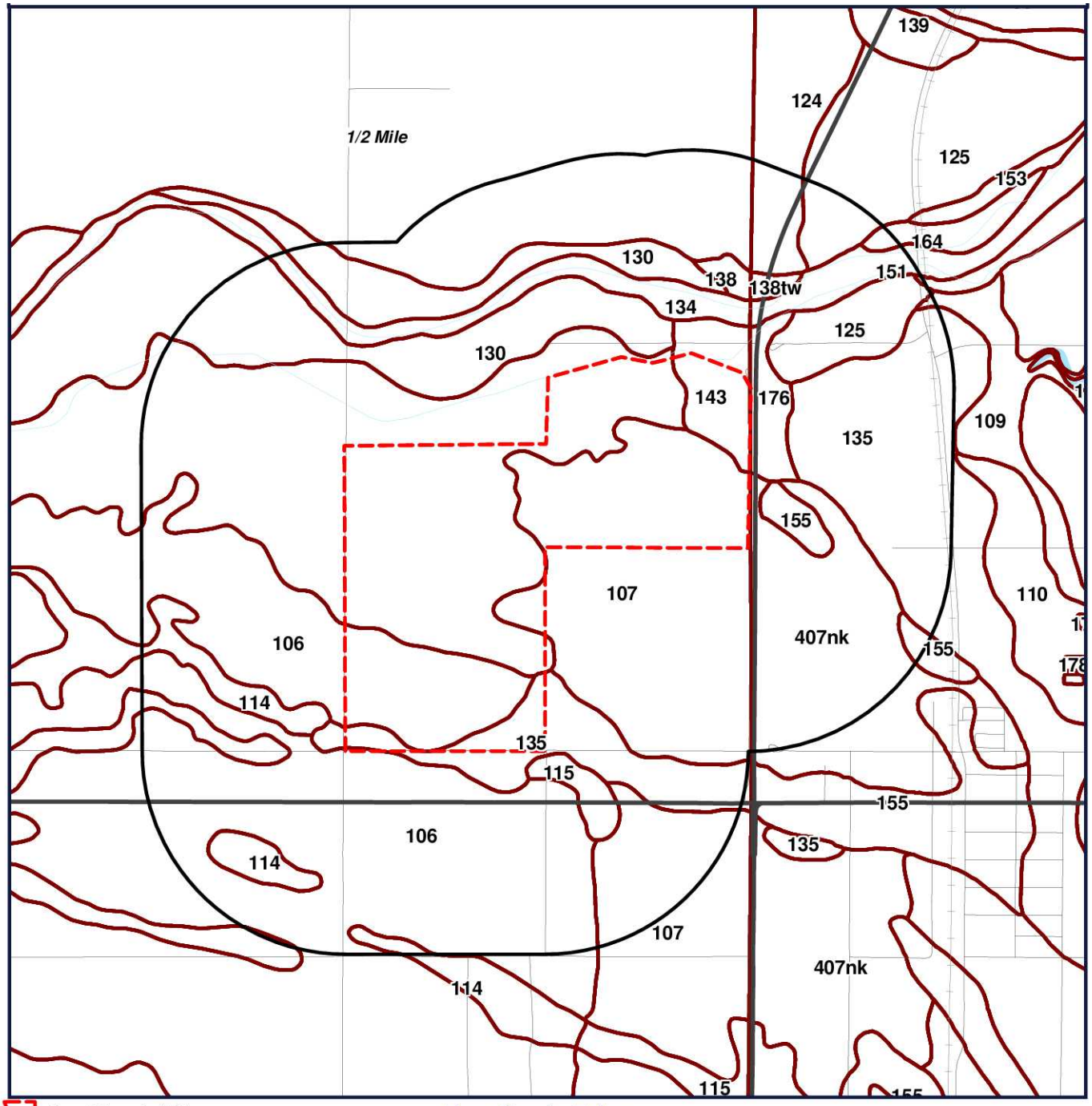
SYSTEM: **RIVERINE**
SUBSYSTEM: **UNKNOWN PERENNIAL**
CLASS: **UNCONSOLIDATED BOTTOM**
WATER REGIME: **SEMIPERMANENTLY FLOODED**

R5UBFx

SYSTEM: **RIVERINE**

SUBSYSTEM: **UNKNOWN PERENNIAL**
CLASS: **UNCONSOLIDATED BOTTOM**
WATER REGIME: **SEMIPERMANENTLY FLOODED**
SPECIAL MODIFIER: **EXCAVATED**

Soil Map



Target Property (TP)

SOIL BOUNDARY

NOTCOM - DIGITAL DATA NOT AVAILABLE/NOT COMPLETE

Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

[Click here to access Satellite view]

SOIL Report

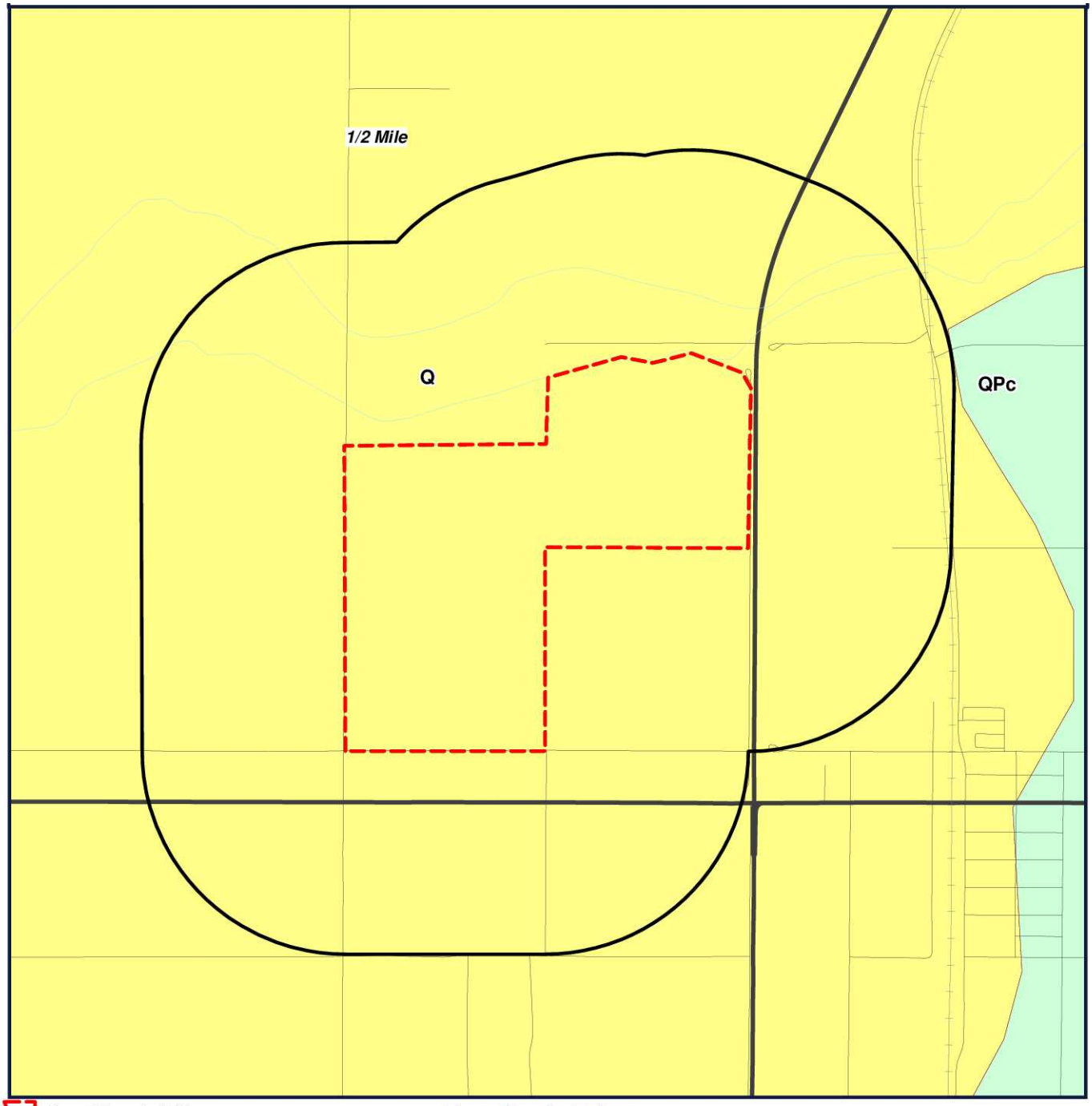
Soil Surveys

The soil data used in this report is obtained from the Natural Resources Conservation Service (NRCS). The NRCS is the primary federal agency that works with private landowners to help them conserve, maintain and improve their natural resources. The soil survey contains information that can be applied in managing farms and ranches; in selecting sites for roads, ponds, buildings and other structures; and in determining the suitability of tracts of land for farming, industry and recreation. This data is available in select counties throughout the United States.

SOIL Code Definitions within Search Radius

138tw	TUJUNGA LOAMY SAND, 0 TO 2 PERCENT SLOPES
407nk	CENTERVILLE CLAY, 2 TO 5 PERCENT SLOPES
109	CENTERVILLE CLAY, 0 TO 2 PERCENT SLOPES
124	EXETER LOAM, 0 TO 2 PERCENT SLOPES
125	EXETER LOAM, 2 TO 9 PERCENT SLOPES
135	HAVALA LOAM, 2 TO 5 PERCENT SLOPES
151	RIVERWASH
153	SAN EMIGDIO LOAM
155	SAN JOAQUIN LOAM, 2 TO 9 PERCENT SLOPES
164	TUJUNGA SAND
176	YETTEM SANDY LOAM, 0 TO 2 PERCENT SLOPES
106	CENTERVILLE CLAY, 0 TO 2 PERCENT SLOPES
107	CENTERVILLE CLAY, 2 TO 5 PERCENT SLOPES
114	EXETER LOAM, 0 TO 2 PERCENT SLOPES
115	EXETER LOAM, 2 TO 5 PERCENT SLOPES
130	NORD FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES
134	RIVERWASH
135	SAN JOAQUIN LOAM, 0 TO 2 PERCENT SLOPES
138	TUJUNGA LOAMY SAND, 0 TO 2 PERCENT SLOPES
143	YETTEM SANDY LOAM, 0 TO 2 PERCENT SLOPES

Geology Map



Target Property (TP)

Deer Creek -Tulare
Terra Bella Avenue
Terra Bella, California
93270

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

[Click here to access Satellite view]

GEOLOGY Report

US GEOLOGY

THE GEOLOGY DATA USED IN THIS REPORT ORIGINATES FROM THE USGS. THE FIRST STAGE IN DEVELOPING STATE DATABASES FOR THE CONTERMINOUS UNITED STATES WAS TO ACQUIRE DIGITAL VERSIONS OF ALL EXISTING STATE GEOLOGIC MAPS. ALTHOUGH A SIGNIFICANT NUMBER OF DIGITAL STATE MAPS ALREADY EXISTED, A NUMBER OF STATES LACKED THEM. FOR THESE STATES NEW DIGITAL COMPILATIONS WERE PREPARED IN COOPERATION WITH STATE GEOLOGIC SURVEYS OR BY THE NSA (NATIONAL SURVEYS AND ANALYSIS) PROJECT. THESE NEW DIGITAL STATE GEOLOGIC MAPS AND DATABASES WERE CREATED BY DIGITIZING ALREADY EXISTING PRINTED MAPS, OR, IN A FEW CASES, BY MERGING EXISTING LARGER SCALE DIGITAL MAPS.

GEOLOGY Definitions within Search Radius

GEOLOGY SYMBOL: **Q**
UNIT NAME: **Quaternary alluvium and marine deposits**
UNIT AGE: **Pliocene to Holocene**
UNIT DESCRIPTION:
Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.
ADDITIONAL UNIT INFORMATION:

ROCKTYPE/S: **alluvium; terrace; lake or marine deposit (non-glacial)**

GeoSearch
On time. On target. In touch.™

GeoPlus Water Well Report

Satellite view

Target Property:

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, Tulare County, California 93270

Prepared For:

Environmental Science Assoc-Irvine

Order #: 109067
Job #: 239877
Project #: D170464.00
Date: 05/29/2018

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Target Property Summary

Target Property Information

Deer Creek - Tulare
Terra Bella Avenue
Terra Bella, California 93270

Coordinates
Area

USGS Quadrangle
Ducor, CA

Geographic Coverage Information

County/Parish: Tulare (CA)
ZipCode(s):
Porterville CA: 93257
Terra Bella CA: 93270

Database Radius Summary

FEDERAL LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
NWIS	0.5000	0	2	3	11	NS	NS	16
SUB-TOTAL		0	2	3	11	0	0	16

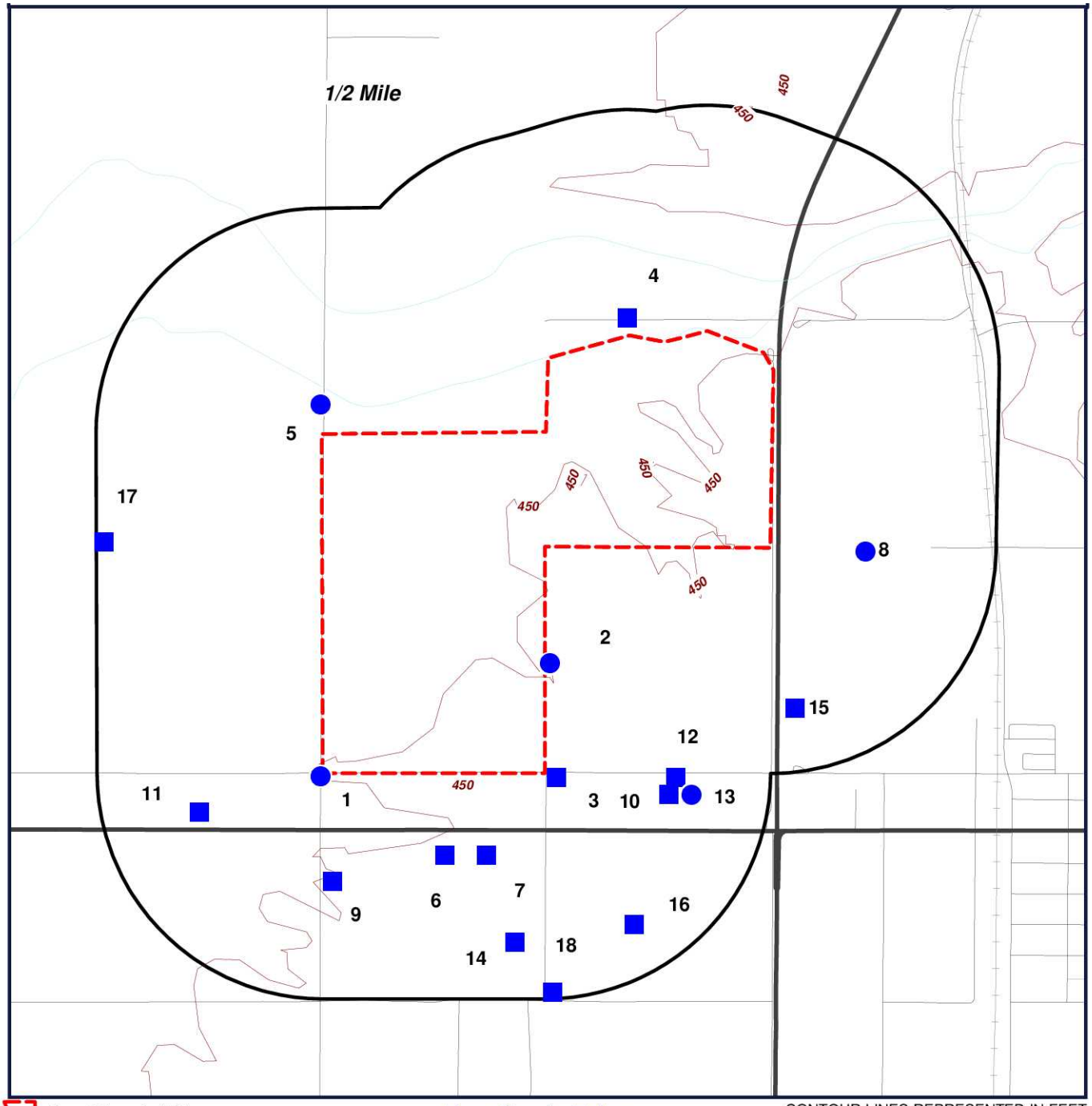
Database Radius Summary

STATE (CA) LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
DWRWELLS	0.5000	3	2	2	2	NS	NS	9
SUB-TOTAL		3	2	2	2	0	0	9
TOTAL		3	4	5	13	0	0	25

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Waterwell Map



Click here to access Satellite view

Located Sites Summary

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	PAGE #
1	DWRWELLS	0069078	0.007 mi. WSW (37 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	7
2	DWRWELLS	0068430	0.011 mi. E (58 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	8
2	DWRWELLS	0068431	0.011 mi. E (58 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	9
3	NWIS	00054988	0.028 mi. ESE (148 ft.)	023S027E04C001M		10
4	NWIS	00055032	0.039 mi. N (206 ft.)	022S027E28Q001M		12
5	DWRWELLS	0068426	0.067 mi. N (354 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	14
5	DWRWELLS	0068427	0.067 mi. N (354 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	15
6	NWIS	00054973	0.182 mi. S (961 ft.)	023S027E04E001M		16
7	NWIS	00054972	0.182 mi. S (961 ft.)	023S027E04F001M		18
8	DWRWELLS	0068432	0.211 mi. E (1114 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	20
8	DWRWELLS	0068433	0.211 mi. E (1114 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	21
9	NWIS	00054970	0.24 mi. S (1267 ft.)	023S027E05H001M		22
10	NWIS	00054979	0.28 mi. E (1478 ft.)	023S027E04A001M		24
11	NWIS	00054976	0.287 mi. WSW (1515 ft.)	023S027E05B001M		26
11	NWIS	00054982	0.287 mi. WSW (1515 ft.)	023S027E05A001M		28
12	NWIS	00054987	0.291 mi. E (1536 ft.)	023S027E04B001M		30
13	DWRWELLS	0069076	0.328 mi. E (1732 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	32
13	DWRWELLS	0069077	0.328 mi. E (1732 ft.)		TULARE COUNTY, TERRA BELLA, CA 93270	33
14	NWIS	00054962	0.374 mi. S (1975 ft.)	023S027E04F003M		34
14	NWIS	00054964	0.355 mi. S (1874 ft.)	023S027E04F002M		36
15	NWIS	00054996	0.359 mi. S (1896 ft.)	023S027E03D001M		38
16	NWIS	00054965	0.39 mi. SE (2059 ft.)	023S027E04G001M		40
17	NWIS	00055007	0.484 mi. W (2556 ft.)	022S027E32Z001M MENDENHALL 1916		42
18	NWIS	00054951	0.486 mi. S (2566 ft.)	023S027E04Z001M MENDENHALL 1916		44

Located Sites Summary

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	PAGE #
18	NWIS	00054952	0.486 mi. S (2566 ft.)	023S027E04Z002M MENDENHALL 1916		46

California Department of Water Resources Water Wells (DWRWELLS)

MAP ID# 1 **Distance from Property: 0.007 mi. (37 ft.) WSW**

GEOSEARCH ID: **0069078**
WATERWELL NUMBER: **23S27E05A001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.071700000**
LATITUDE: **35.964200000**

Back to Report Summary

MAP ID# 2 **Distance from Property: 0.011 mi. (58 ft.) E**

GEOSEARCH ID: **0068430**
WATERWELL NUMBER: **22S27E33P001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.062600000**
LATITUDE: **35.967800000**

Back to Report Summary

MAP ID# 2 **Distance from Property: 0.011 mi. (58 ft.) E**

GEOSEARCH ID: **0068431**
WATERWELL NUMBER: **22S27E33P001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.062600000**
LATITUDE: **35.967800000**

Back to Report Summary

MAP ID# 3 **Distance from Property: 0.028 mi. (148 ft.) ESE**

GEOSEARCH ID: **00054988**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355751119034101**
STATION NAME: **023S027E04C001M**
SITE TYPE: **WELL**
LATITUDE: **35.964119790**
LONGITUDE: **-119.062325000**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **SWS04 T23S**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **455.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **150 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

Back to Report Summary

MAP ID# 4 **Distance from Property: 0.039 mi. (206 ft.) N**

GEOSEARCH ID: **00055032**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355844119033101**
STATION NAME: **022S027E28Q001M**
SITE TYPE: **WELL**
LATITUDE: **35.978842000**
LONGITUDE: **-119.059547200**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NOT REPORTED**
NAME OF LOCATION MAP: **NOT REPORTED**
SCALE OF LOCATION MAP: **NOT REPORTED**
ALTITUDE OF GAGE/LAND SURFACE: **NOT REPORTED**
METHOD OF ALTITUDE DETERMINED: **NOT REPORTED**
ALTITUDE ACCURACY: **NOT REPORTED**
ALTITUDE DATUM: **NOT REPORTED**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **500 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **1957-06-10**
WATER-QUALITY DATA END DATE: **--**
WATER-QUALITY DATA COUNT: **1**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **--**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **--**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **0**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

Back to Report Summary

MAP ID# 5 **Distance from Property: 0.067 mi. (354 ft.) N**

GEOSEARCH ID: **0068426**
WATERWELL NUMBER: **22S27E32A001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.071700000**
LATITUDE: **35.976100000**

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California Department of Water Resources Water Wells (DWRWELLS)

MAP ID# 5 **Distance from Property: 0.067 mi. (354 ft.) N**

GEOSEARCH ID: **0068427**
WATERWELL NUMBER: **22S27E32A001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.071700000**
LATITUDE: **35.976100000**

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MAP ID# 6 **Distance from Property: 0.182 mi. (961 ft.) S**

GEOSEARCH ID: **00054973**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355742119035701**
STATION NAME: **023S027E04E001M**
SITE TYPE: **WELL**
LATITUDE: **35.961619800**
LONGITUDE: **-119.066769600**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S04 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **455.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **02/19/1959**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **NOT REPORTED**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **--**
WATER-QUALITY DATA END DATE: **1959-02-19**
WATER-QUALITY DATA COUNT: **0**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1959-02-19**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1959-02-19**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 7 **Distance from Property: 0.182 mi. (961 ft.) S**

GEOSEARCH ID: **00054972**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355742119035101**
STATION NAME: **023S027E04F001M**
SITE TYPE: **WELL**
LATITUDE: **35.961619800**
LONGITUDE: **-119.065102800**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S04 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **461.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **02/19/1959**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **500 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **--**
WATER-QUALITY DATA END DATE: **1959-02-19**
WATER-QUALITY DATA COUNT: **0**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1959-02-19**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1959-02-19**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 8 **Distance from Property: 0.211 mi. (1,114 ft.) E**

GEOSEARCH ID: **0068432**
WATERWELL NUMBER: **22S27E34M001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.050100000**
LATITUDE: **35.971400000**

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MAP ID# 8 **Distance from Property: 0.211 mi. (1,114 ft.) E**

GEOSEARCH ID: **0068433**
WATERWELL NUMBER: **22S27E34M001M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.050100000**
LATITUDE: **35.971400000**

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MAP ID# 9 **Distance from Property: 0.24 mi. (1,267 ft.) S**

GEOSEARCH ID: **00054970**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355739119041301**
STATION NAME: **023S027E05H001M**
SITE TYPE: **WELL**
LATITUDE: **35.960786500**
LONGITUDE: **-119.071214200**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S05 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **449.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **NOT REPORTED**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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MAP ID# 10 **Distance from Property: 0.28 mi. (1,478 ft.) E**

GEOSEARCH ID: **00054979**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355749119032501**
STATION NAME: **023S027E04A001M**
SITE TYPE: **WELL**
LATITUDE: **35.963564200**
LONGITUDE: **-119.057880400**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NES04 T23S**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **465.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **250 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **1958-08-06**
WATER-QUALITY DATA END DATE: **--**
WATER-QUALITY DATA COUNT: **1**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **--**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **--**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **0**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 11 **Distance from Property: 0.287 mi. (1,515 ft.) WSW**

GEOSEARCH ID: **00054976**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355747119043201**
STATION NAME: **023S027E05B001M**
SITE TYPE: **WELL**
LATITUDE: **35.963008750**
LONGITUDE: **-119.076492200**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NOT REPORTED**
NAME OF LOCATION MAP: **NOT REPORTED**
SCALE OF LOCATION MAP: **NOT REPORTED**
ALTITUDE OF GAGE/LAND SURFACE: **NOT REPORTED**
METHOD OF ALTITUDE DETERMINED: **NOT REPORTED**
ALTITUDE ACCURACY: **NOT REPORTED**
ALTITUDE DATUM: **NOT REPORTED**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **905 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **1958-02-07**
WATER-QUALITY DATA END DATE: **--**
WATER-QUALITY DATA COUNT: **1**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **--**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **--**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **0**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 11 **Distance from Property: 0.287 mi. (1,515 ft.) WSW**

GEOSEARCH ID: **00054982**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355750119041701**
STATION NAME: **023S027E05A001M**
SITE TYPE: **WELL**
LATITUDE: **35.963008750**
LONGITUDE: **-119.076492200**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NES05 T23S**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **450.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **02/19/1959**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **352 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **1956-09-01**
WATER-QUALITY DATA END DATE: **1959-02-19**
WATER-QUALITY DATA COUNT: **1**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1959-02-19**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1959-02-19**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 12 **Distance from Property: 0.291 mi. (1,536 ft.) E**

GEOSEARCH ID: **00054987**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355751119032401**
STATION NAME: **023S027E04B001M**
SITE TYPE: **WELL**
LATITUDE: **35.964119770**
LONGITUDE: **-119.057602600**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NWS04 T23S**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **465.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **01/01/1956**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **295 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **--**
WATER-QUALITY DATA END DATE: **1956-01-01**
WATER-QUALITY DATA COUNT: **0**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1956-01-01**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1956-01-01**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 13 **Distance from Property: 0.328 mi. (1,732 ft.) E**

GEOSEARCH ID: **0069076**
WATERWELL NUMBER: **23S27E04A002M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.057000000**
LATITUDE: **35.963600000**

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MAP ID# 13 **Distance from Property: 0.328 mi. (1,732 ft.) E**

GEOSEARCH ID: **0069077**
WATERWELL NUMBER: **23S27E04A002M**
WELL TYPE: **VOLUNTARY**
WELL DEPTH: **UNKNOWN**
WELL USAGE: **UNKNOWN**
BASIN: **TULE**
LONGITUDE: **-119.057000000**
LATITUDE: **35.963600000**

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MAP ID# 14 **Distance from Property: 0.374 mi. (1,975 ft.) S**

GEOSEARCH ID: **00054962**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355732119034701**
STATION NAME: **023S027E04F003M**
SITE TYPE: **WELL**
LATITUDE: **35.958842000**
LONGITUDE: **-119.063991700**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S04 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **466.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **01/01/1956**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **493 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **--**
WATER-QUALITY DATA END DATE: **1956-01-01**
WATER-QUALITY DATA COUNT: **0**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1956-01-01**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1956-01-01**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 14 **Distance from Property: 0.355 mi. (1,874 ft.) S**

GEOSEARCH ID: **00054964**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355733119034701**
STATION NAME: **023S027E04F002M**
SITE TYPE: **WELL**
LATITUDE: **35.959119790**
LONGITUDE: **-119.063991700**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S04 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **457.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **NOT REPORTED**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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MAP ID# 15 **Distance from Property: 0.359 mi. (1,896 ft.) S**

GEOSEARCH ID: **00054996**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355759119030701**
STATION NAME: **023S027E03D001M**
SITE TYPE: **WELL**
LATITUDE: **35.966341970**
LONGITUDE: **-119.052880200**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **SES03 T23S**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **471.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **02/11/1959**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **DATA HAVE BEEN CHECKED BY THE REPORTING AGENCY**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **173 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **0**
PEAK-STREAMFLOW DATA BEGIN DATE: **--**
PEAK-STREAMFLOW DATA END DATE: **--**
PEAK-STREAMFLOW DATA COUNT: **0**
WATER-QUALITY DATA BEGIN DATE: **--**
WATER-QUALITY DATA END DATE: **1959-02-11**
WATER-QUALITY DATA COUNT: **0**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **1959-02-11**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **1959-02-11**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **1**

SITE-VISIT DATA BEGIN DATE: **--**

SITE-VISIT DATA END DATE: **--**

SITE-VISIT DATA COUNT: **0**

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MAP ID# 16 **Distance from Property: 0.39 mi. (2,059 ft.) SE**

GEOSEARCH ID: **00054965**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355734119033001**
STATION NAME: **023S027E04G001M**
SITE TYPE: **WELL**
LATITUDE: **35.959397550**
LONGITUDE: **-119.059269300**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **S04 T23S R2**
NAME OF LOCATION MAP: **TERRA BELLA F3**
SCALE OF LOCATION MAP: **63360**
ALTITUDE OF GAGE/LAND SURFACE: **470.0**
METHOD OF ALTITUDE DETERMINED: **INTERPOLATED FROM TOPOGRAPHIC MAP**
ALTITUDE ACCURACY: **52**
ALTITUDE DATUM: **NGVD29**
HYDROLOGIC UNIT CODE: **18030012**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **UNCHECKED DATA**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **S100CNRLVL**
WELL DEPTH: **470 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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MAP ID# 17 **Distance from Property: 0.484 mi. (2,556 ft.) W**

GEOSEARCH ID: **00055007**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355818119044901**
STATION NAME: **022S027E32Z001M MENDENHALL 1916**
SITE TYPE: **WELL**
LATITUDE: **35.971666670**
LONGITUDE: **-119.080277800**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NOT REPORTED**
NAME OF LOCATION MAP: **NOT REPORTED**
SCALE OF LOCATION MAP: **NOT REPORTED**
ALTITUDE OF GAGE/LAND SURFACE: **NOT REPORTED**
METHOD OF ALTITUDE DETERMINED: **NOT REPORTED**
ALTITUDE ACCURACY: **NOT REPORTED**
ALTITUDE DATUM: **NOT REPORTED**
HYDROLOGIC UNIT CODE: **NOT REPORTED**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **LOCATION NOT ACCURATE**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **NOT REPORTED**
WELL DEPTH: **74 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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MAP ID# 18 **Distance from Property: 0.486 mi. (2,566 ft.) S**

GEOSEARCH ID: **00054951**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355726119034501**
STATION NAME: **023S027E04Z001M MENDENHALL 1916**
SITE TYPE: **WELL**
LATITUDE: **35.957222200**
LONGITUDE: **-119.062500000**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NOT REPORTED**
NAME OF LOCATION MAP: **NOT REPORTED**
SCALE OF LOCATION MAP: **NOT REPORTED**
ALTITUDE OF GAGE/LAND SURFACE: **NOT REPORTED**
METHOD OF ALTITUDE DETERMINED: **NOT REPORTED**
ALTITUDE ACCURACY: **NOT REPORTED**
ALTITUDE DATUM: **NOT REPORTED**
HYDROLOGIC UNIT CODE: **NOT REPORTED**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **LOCATION NOT ACCURATE**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **NOT REPORTED**
WELL DEPTH: **98 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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MAP ID# 18 **Distance from Property: 0.486 mi. (2,566 ft.) S**

GEOSEARCH ID: **00054952**
REPORTING AGENCY: **US GEOLOGICAL SURVEY**
SITE IDENTIFICATION NUMBER: **355726119034502**
STATION NAME: **023S027E04Z002M MENDENHALL 1916**
SITE TYPE: **WELL**
LATITUDE: **35.957222200**
LONGITUDE: **-119.062500000**
DISTRICT CODE: **06**
STATE CODE: **06**
COUNTY CODE: **107**
COUNTRY CODE: **US**
LAND NET LOCATION DESCRIPTION: **NOT REPORTED**
NAME OF LOCATION MAP: **NOT REPORTED**
SCALE OF LOCATION MAP: **NOT REPORTED**
ALTITUDE OF GAGE/LAND SURFACE: **NOT REPORTED**
METHOD OF ALTITUDE DETERMINED: **NOT REPORTED**
ALTITUDE ACCURACY: **NOT REPORTED**
ALTITUDE DATUM: **NOT REPORTED**
HYDROLOGIC UNIT CODE: **NOT REPORTED**
DRAINAGE BASIN CODE: **NOT REPORTED**
TOPOGRAPHIC SETTING CODE: **NOT REPORTED**
DATE OF FIRST CONSTRUCTION: **NOT REPORTED**
DATE SITE ESTABLISHED OR INVENTORIED: **NOT REPORTED**
DRAINAGE AREA: **NOT REPORTED**
CONTRIBUTING DRAINAGE AREA: **NOT REPORTED**
MEAN GREENWICH TIME OFFSET: **PST**
LOCAL STANDARD TIME FLAG: **Y**
DATA RELIABILITY: **LOCATION NOT ACCURATE**
LOCAL AQUIFER: **NOT REPORTED**
LOCAL AQUIFER TYPE CODE: **NOT REPORTED**
NATIONAL AQUIFER CODE: **NOT REPORTED**
WELL DEPTH: **65 FEET**
HOLE DEPTH: **NOT REPORTED**
SOURCE OF DEPTH DATA: **NOT REPORTED**
PROJECT NUMBER: **NOT REPORTED**
REAL-TIME DATA FLAG: **NOT REPORTED**
PEAK-STREAMFLOW DATA BEGIN DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA END DATE: **NOT REPORTED**
PEAK-STREAMFLOW DATA COUNT: **NOT REPORTED**
WATER-QUALITY DATA BEGIN DATE: **NOT REPORTED**
WATER-QUALITY DATA END DATE: **NOT REPORTED**
WATER-QUALITY DATA COUNT: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS BEGIN DATE: **NOT REPORTED**
FIELD WATER-LEVEL MEASUREMENTS END DATE: **NOT REPORTED**

FIELD WATER-LEVEL MEASUREMENTS COUNT: **NOT REPORTED**
SITE-VISIT DATA BEGIN DATE: **NOT REPORTED**
SITE-VISIT DATA END DATE: **NOT REPORTED**
SITE-VISIT DATA COUNT: **NOT REPORTED**

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NWIS United States Geological Survey National Water Information System

VERSION DATE: 12/14/16

This USGS National Water Information System database only includes groundwater wells. The USGS defines this well type as: A hole or shaft constructed in the earth intended to be used to locate, sample, or develop groundwater, oil, gas, or some other subsurface material. The diameter of a well is typically much smaller than the depth. Wells are also used to artificially recharge groundwater or to pressurize oil and gas production zones. Additional information about specific kinds of wells should be recorded under the secondary site types or the Use of Site field. Underground waste-disposal wells should be classified as waste-injection wells.

DWRWELLS California Department of Water Resources Water Wells

VERSION DATE: 09/20/17

The California Department of Water Resources (DWR) maintains this database of water wells, including California Statewide Groundwater Elevation Monitoring (CASGEM) program wells and Voluntary wells. In Late 2009 the State Legislature amended the Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. To achieve that goal, the amendment requires collaboration between local monitoring entities and DWR to collect groundwater elevation data. In accordance with this amendment to the Water Code, DWR developed the CASGEM program.

Appendix D

All Appropriate Inquiry (AAI) Questionnaire

INTERVIEW QUESTIONNAIRE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
Compatible with ASTM Standard E 1527

Site Name: Deer Creek Solar I

Site Address: Terra Bella Ave and Road 224, Terra Bella, Tulare County, CA

Date: May 2018

Interviewer: Arabesque Said

Interviewee: Todd Jensen

Site Association: 302-230-013 / 302-460-003

Years Associated: 38 Years

Please answer the following questions to the best of your knowledge.

1. Was the property or adjoining property ever used for industrial purposes (e.g. manufacturing) or as a gas station, dry cleaners, waste treatment, processing facility, motor repair facility, photo lab, commercial printing facility, junkyard/disposal/recycling/ landfill? If yes, please list the activity, hazardous substances used, and approximate dates when the activity occurred.

   Prior land use, hazardous substances used, and dates:

   Farm Land
   NO hazardous substances

   Prior owners, key site managers/operators, occupants and dates:

   N/A

   Existing or prior structures used for what purposes and duration:

   Hay Barn, For storing hay

2. Do any of the following documents exist for the site or any portion of the site? If so, can you provide a copy?

- ☐ Environmental site assessment reports
- ☐ Environmental compliance audit reports
- ☐ Environmental permits
- ☐ Underground Storage Tank registration
- ☐ Underground Injection System registration
- ☐ Material Safety Data Sheets
- ☐ Community Right-To-Know Plan
- ☐ Safety plans: preparedness and prevention plans; spill prevention; countermeasure; and control plans, etc.
- ☐ Reports regarding hydrogeologic conditions on the property or surrounding area;
- ☐ Correspondence from any government agency relating to past or current violations of environmental laws with regard to the property or relating to environmental liens encumbering the property
- ☐ Hazardous waste generator notices or reports
- ☐ Geotechnical studies
- ☐ Risk assessments
- ☐ Recorded Activity and Use Limitations (AULs)

3. Have you ever observed evidence of or do you have prior knowledge of any of the following items being used, stored, discarded, dumped above grade, buried, or burned onsite? Circle all that apply and indicate amount and approximate dates.

MATERIAL	QUANTITY	DATE(S) OBSERVED	COMMENTS
Above ground storage tank (AST)*	4		Size: 2-1000gallons/2-500 gallons Contents: Diesel Tanks Condition: Good
Automotive batteries	5		Batteries on diesel wells & Tractors
Industrial batteries	~~0~~		
Pesticides (>5 gallon)	~~0~~		
Paints (> 5 gallon)	~~0~~		
Chemicals/Hazardous Substances (> 5 gallon liquid)	~~0~~		

MATERIAL	QUANTITY	DATE(S) OBSERVED	COMMENTS
Chemicals/Hazardous Substances (dry sacks, containers, etc.)	0		
Industrial drums (typically 55 gallons)	1		Contents: 15032 drip oil for wells Condition: Good
Transformer or other equipment that may contain PCBs (e.g. hydraulic equipment)*	0		Installation date:
Underground storage tank*	0		Size: Contents: Condition:
Unknown materials you suspect may be hazardous substances	0		Describe:

*Please provide records if available.

4. What method(s) is used to contain spills of hazardous waste?

N/A

5. What method(s) is used to dispose of hazardous waste?

N/A

6. Are there any permits for handling, use, storage, or disposal of hazardous waste?

N/A

7. Have you observed evidence of or have prior knowledge of the following onsite?

MATERIAL	QUANTITY	DATE(S) OBSERVED	COMMENTS
Equipment Maintenance Areas	1	1980 - 2016	Changed oil on tractors in Barn Took oil to Recycle center
Accidental spills or releases of chemicals or petroleum products	NO		

MATERIAL	QUANTITY	DATE(S) OBSERVED	COMMENTS
Possible asbestos containing materials (e.g. pipe, building, etc.)	Possible Transite pipeline	1990-2018	Describe material: Irrigation pipe Line
Fill dirt originating from an unknown or contaminated site?	⊘		Source:
Pits, ponds, or lagoons associated with waste treatment or waste disposal?	⊘		Location:
Stained soil or odiferous soil? (e.g. oily black)	⊘		Location:
Sumps or dry wells*	⊘		Size : Contents : Condition :
Vent pipes, fill pipes, access ways to a fill pipe protruding from the ground or adjacent to a structure onsite?	⊘		Location:
Heating and cooling systems (include fuel source)	⊘		Source:
Flooring, drains, walls that are stained or emitting a foul odor (do NOT include water damage)?	⊘		Location:

*Please provide records if available.

8. Is the property served by a private well or non-public water system? If so, please answer the following:

   a. Was the well used for domestic (D), agricultural irrigation (I), or monitoring (M) purposes? Are the wells currently operational and if not, when were they last used? When was the well drilled? How deep is the well? What is the approximate discharge rate?

Well No.	Type	Operating?	Last Used	Date Drilled	Depth	Discharge Rate	Location
1- 1	I	Yes	2018	1989	800'	650 gallon	2miles North From Ave 95 on Rd 232 1/4 mile West Along Fence Line
2- 5	I	Yes	2018	1989	750'	750 gallons	Rd 224 & Ave 95 1/2 mile East & 1/2 mile North From Intersection.

b. Have the wells been sampled for contaminants that exceed applicable requirements for the designated use (e.g. Drinking Water Standards)? If so, please provide the dates and copies of well records.

NO

c. Has the well or water system been designated by any governmental environmental/health agency as contaminated? NO

9. Is there an oil/gas well or oil/gas vent located onsite? If so, please indicate the location. Please supply any documents available.

NO

10. Is the property or has the property to your knowledge been previously served by a septic system? If so, please indicate the location of the tank and leach lines (if applicable) and list any hazardous materials disposed.

NO

11. Does the property discharge waste water into a storm water sewer system or a sanitary sewer system onto or adjacent to the property? If so, please describe location, piping flow, quantity discharged, and water quality.

NO

12. Do you have knowledge of the following with respect to the property? Circle and explain all that apply.

a. Environmental clean-up, ongoing or pending. NO

b. Environmental liens NO

c. Governmental notifications regarding any possible past or present violations of environmental laws. NO

d. Past, threatened, pending lawsuits or administrative proceedings relevant to a release of a hazardous substance or petroleum product, in, on, or from the property. NO

e. Prior environmental assessment that indicated the presence of hazardous substances, petroleum hydrocarbons, contaminants, or recommended further assessment.

f. Deed Restrictions NO

g. Citizen complaints regarding activities onsite NO

AGRICULTURAL SITES:

13. What crops have been grown onsite, currently and in the past?

CROP	DATE	LOCATION	
Prunes	1990-2015	Highlighted on map	
Wheat	1970-2018	all open ground	DRY Land only 2012-2018
Oat hay	1970-2016	all open ground	DRY Land only 2010-2016

If crops are present or have been grown, please answer questions 14 through 16 below:

14. Have pesticides been applied to fields or other portions of the site? If so, please answer the following questions:

    a. List the names of pesticides (includes herbicides, fungicides, insecticides, rodenticide) used and dates applied.

PESTICIDE AND BRAND NAME	DATE	CROP OR ANIMAL USE
Herbicides - Simplicity	1-20-2018	Wheat Crop


well-1
PVC Pipe
Transite Pipe
Transite Pipe
Barn
Road 232
PVC Pipe
Road 224
PRUNES
PRUNES
well-5
PRUNES
cement Pipe
PVC Pipe
cement Pipe
PVC Pipe
Cement Pipe
AVE 96
35°58'00

b. Have you been notified of any violation of environmental law with respect to application or storage of pesticides?

NO

c. Location of pesticide mixing areas, if any (past or present)?

The Hay Barn

d. Method of pesticide application?

Ground

15. Have fertilizers been applied to the site? What type and method of application?

UN-32 Ground Rig sprayed on then Dics in

16. Are there any buried pipelines for irrigation or other purposes onsite? If so, what materials is the piping constructed of? Asbestos containing material, PVC, other? Describe the location of buried piping.

Yes, PVC, Transite Pipe, Cement.

See Attached Map For Location's.

User Questionnaire

Only the client ("user") needs to respond to the following questions:

17. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law? NO

18. Are you aware of any Activity and Use Limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law? NO

19. As the user of this Phase 1 ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? NO

20. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

21. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

a) Do you know the past uses of the property? Yes

b) Do you know of specific chemicals that are present or once were present at the property? Yes

c) Do you know of spills or other chemical releases that have taken place at the property? NO

d) Do you know of any environmental cleanups that have taken place at the property? NO

22. As the user of this Phase 1 ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property? There are no contamination on this property as far as I know there has never been a spill.

Appendix F
Water Supply Assessment

ESA

Water Supply Assessment
for the
Deer Creek Solar Project
Tulare County, California

Lead Agency:

County of Tulare
Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

Prepared For:

Lendlease Energy Development LLC
909 Lake Carolyn Parkway, Suite 260
Irving, Texas 75039
Contact: Peter Zullo

Prepared by:

DUDEK
621 Chapala Street
Santa Barbara, California 93101
Contact: Matt Naftaly, PH

AUGUST 2018

Printed on 30% post-consumer recycled material.

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EXHIBIT

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TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
bgs	below ground surface
CEQA	California Environmental Quality Act
CWC	California Water Code
DWR	Department of Water Resources
gpm	gallons per minute
IRWMP	Integrated Regional Water Management Plan
MW	megawatt
O&M	operations and maintenance
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
UWMP	urban water management plan
WSA	Water Supply Assessment

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EXECUTIVE SUMMARY

This Water Supply Assessment (WSA) has been prepared to assist Tulare County in satisfying the requirements of Senate Bill 610 for the proposed Deer Creek Solar Project (proposed project). The proposed project would require approximately 147 acre-feet of water to support construction over a 14-month period. Thereafter, the project would require up to 4 acre-feet per year to support operations and maintenance (O&M) activities. The proposed water source for the project is groundwater from the Tule Subbasin of the San Joaquin Groundwater Basin extracted from an on-site groundwater well. No other water sources are proposed to supply the construction and O&M water demand.

The proposed project is not supplied by, or located within, any urban water management planning area. Nor is it located within any agricultural or urban water districts, or other public or private utilities that deliver water to the end user. However, it is within the Tule River Integrated Regional Water Management and Eastern Tule Groundwater Sustainability Agency planning areas. This WSA uses information produced for the Integrated Regional Water Management and Groundwater Sustainability Agency planning processes, and groundwater and well records and analyses to assess the proposed project water requirement as compared to the available water supply. This WSA evaluates the water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the proposed project in addition to other existing and planned future uses of the identified water supply. Based on this evaluation, adequate water supply is available to support the construction and annual O&M demand water demand of the proposed project.

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1 INTRODUCTION

1.1 Purpose of Document

Senate Bill (SB) 610 was passed on January 1, 2002, amending the California Water Code (CWC) to require detailed analysis of water supply availability for certain types of development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and ensuring that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a Water Supply Assessment (WSA) for a project that is subject to the California Environmental Quality Act (CEQA) and meets certain requirements. When a WSA is required per the CWC, it must examine the availability of an identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the project in addition to other existing and planned future uses of the identified water supply.

Tulare County, acting as lead agency, has determined that the Deer Creek Solar Project (proposed project) is subject to CEQA. Following this determination, a public water system is required to prove adequate water supply for the proposed project. The proposed project is not located within the service area of a public water system. Therefore, this WSA will be included in the CEQA documentation and reviewed by the lead agency, who will make an independent determination as to whether there is adequate water supply for the proposed project. This report provides information on the proposed project's water supply and provides data to support the sufficiency of supply.

1.2 Project Location and Description

Lendlease Energy Development LLC, the applicant, is proposing to construct and operate the Deer Creek Solar Project on two assessor's parcels located about 6 miles south of the City of Porterville in the southwest corner of Tulare County (Assessor's Parcel Numbers 302-230-013-000 and 302-460-003-000). The property borders Highway 65 to the east, Avenue 96 to the south, and Road 224 to the west. The proposed project is located about 0.25 miles south of Deer Creek (Figure 1). The proposed project would occupy 375 acres and include a 70-megawatt (MW) alternating current photovoltaic solar energy facility with associated on-site transformers, switchgear, an operations and maintenance (O&M) building, and communications facilities. Giumarra Revocable Living Trust owns the property, and the historical land use has been agriculture. The property has been fallow for several years, and there are no residences located on or planned for the site.

1.3 Water Supply Assessment Applicability

A project that is subject to CEQA requires preparation of a WSA if it is a proposed industrial facility occupying more than 40 acres of land (CWC Section 10912(a)). The proposed project area encompasses approximately 375 acres. SB 610 amended Water Code Sections 10910 and 10912 to create a direct relationship between water supply and land use. Based on this amendment to the CWC, the proposed project is subject to SB 610 and therefore requires the preparation of a WSA.

The CWC, as amended by SB 610, requires that a WSA address the following questions:

- Is there a public water system that will service the project?
- Is there a current UWMP [urban water management plan] that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies to serve the project over the next 20 years?

SB 610 requires the evaluation of the adequacy of water supplies available during normal, single dry, and multiple dry water years during the 20-year projection period including existing and future uses of the identified water supplies.

Sections 1.3.1 through 1.3.4 address the SB 610 WSA questions as they relate to the proposed project.

1.3.1 Identification of a Public Water System

The proposed project is not connected to a public water system, nor is it located within any public water systems, agricultural or urban water districts, or other public or private utilities that deliver water to the end user (DWR 2018a). The water district and private water company closest to the proposed project are the Terra Bella Irrigation District to the east and the Rancho Terra Bella to the west. Several other water districts are located within a 10-mile radius of the proposed project. These include the Saucelito Irrigation, Pixley Irrigation, Ducor Community Services, and Tea Pot Dome Water Districts (Figure 2). The proposed water supply is groundwater from an existing on-site well located at the northern boundary of the property (Figure 1).

1.3.2 Urban Water Management Plan Coverage

Urban water management plans (UWMPs) are prepared by California's urban water suppliers to support long-term resource planning and ensure adequate water supplies. Every urban

water supplier that either delivers more than 3,000 acre-feet per year (AFY) of water annually or serves more than 3,000 connections is required to assess the reliability of its water sources over a 20-year period under normal-year, dry-year, and multiple-dry-year scenarios; these are the same requirements of a WSA, as specified by SB 610. UWMPs must be updated and submitted to the California Department of Water Resources (DWR) every 5 years for review and approval.

The proposed project is not within an area addressed by any UWMP. However, the subject property is located within about 2.5 miles of the City of Porterville jurisdiction and south of the area addressed by the Kaweah Delta Water Conservation District. Where reasonable, information contained in the UWMPs for these districts have been applied to the analysis of the proposed project for this WSA. In addition, the proposed project is within the area covered by the Tule River Basin Integrated Regional Water Management Plan (IRWMP). Information from the IRWMP has also informed this WSA.

1.3.3 Groundwater as a Component of Project Water Supply

Groundwater extracted from the Tule Subbasin (subbasin) of the San Joaquin Groundwater Basin (DWR Basin Number 5-022.13) through an on-site groundwater well is the sole source of water proposed for the project (Figure 3). Section 3 includes an analysis of the Tule Subbasin and proposed groundwater well.

1.3.4 Sufficiency of Supplies Over the Next 20 Years

As described in Sections 2 and 3, there is adequate groundwater available to supply the proposed project through the construction and ongoing operational phases of the project.

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2 PROJECT WATER DEMAND

The proposed project's water demand was estimated for the construction and O&M phases of the proposed project. The total water consumed for the construction phase, including earthwork and dust control, is estimated to be 147 acre-feet (AF). The construction phase is expected to last 320 days during a 14-month period. Table 1 shows the water demand and water production rate required for the construction phase.

Table 1
Construction Phase Water Demand

Water Demand (Acre-Feet) [1]	Total Gallons[2]	Gallons per Construction Day	Gallons Per Hour	Gallons Per Minute
147	47,900,097	149,688	18,711	312

Notes:
1 Pumping rate based on 8-hour per day over 320 construction days.
2 An acre-foot contains 325,851 gallons.

During the ongoing O&M phase of the proposed project, water will be required to wash panel surfaces and for dust control. Panel washing will occur approximately 120 days per year and require 2 AFY. Dust control is estimated to require an additional 2 AFY. Therefore, once the construction phase is complete, the water requirement is 4 AFY. For O&M water demand, panel rinsing is expected to be conducted up to four times annually as performance testing and weather and site conditions dictate. It is estimated that it will take about 40 days to complete each round of panel washing.

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3 WATER SUPPLY ASSESSMENT

A WSA is required to identify and describe the water supply source(s) that will serve the proposed project. CWC Section 10910(d) requires a WSA to include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years if the source is a public water supplier.

3.1 Water Resources in the Tule Subbasin

The proposed project is located in the Tule Subbasin of the San Joaquin Groundwater Basin (DWR Basin Number 5-022.13) (Figure 3). Groundwater is the source of about half of the subbasin's water supply (DWR 2018b). Both the San Joaquin Basin and Tule Subbasin are designated as critically overdrafted by DWR. As defined by DWR, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts" (DWR 2018c).

DWR has designated the Tule Subbasin as high priority in accordance with the requirements of the Sustainable Groundwater Management Act (SGMA). SGMA requires all medium or high priority basins to be managed in accordance with a groundwater sustainability plan by January 31, 2022. Critically overdrafted groundwater basins are required to be managed in accordance with a groundwater sustainability plan by January 31, 2020. Groundwater sustainability agencies formed in accordance with SGMA are responsible for complying with its requirements.

In addition to requiring the sustainable management of priority California groundwater basins, the SGMA legislation states that nothing in the legislation "determines or alters surface water rights or groundwater rights under common law or any provisions of law that determines or grants surface water rights" (CWC Section 10720.5(b)). California landowner rights include the right to use groundwater underlying their property for beneficial and non-wasteful use.

The proposed project is within the Eastern Tule Groundwater Sustainability Agency, which is one of several groundwater sustainability agencies that are coordinating within the subbasin to implement the SGMA.

3.1.1 Surface Water

Surface water sources within the Tule Subbasin include direct diversion of Tule River and Deer Creek flow; imported water from the Friant Diversion, Central Valley Project; and the Success Reservoir. The Angiola Water District also receives State Water Project deliveries. Imported water is delivered throughout the subbasin for crop irrigation and groundwater recharge (Harder

2017). The Central Valley Project was constructed by the U.S. Bureau of Reclamation and transmits water from the Sacramento River – San Joaquin River Delta south to the San Luis Reservoir. From the reservoir, water is delivered through the San Luis Canal and the Coalinga Canal and distributed through pipelines to several entities within the subbasin. The Success Reservoir is a U.S. Army Corps of Engineers project completed in 1961. It is located along Highway 190 on the Tule River in the south central part of the subbasin and provides flood protection, irrigation water, and hydroelectric power within the valley. It has a capacity of about 85,400 AF (TRBIG 2018).

Water conservation measures are implemented within both the urban and agricultural sectors of the subbasin, and recycled water is used to offset groundwater use (TRBIG 2018). The primary natural recharges to the subbasin are the Tule River, Deer Creek, and White River, all of which flow from the Sierra Nevada Mountains, west toward the Tulare Lake Bed (Figure 2).

Table 2 lists the combined imported water to entities within the subbasin by water year.

Table 2
Tule Subbasin Imported Water

Water Year	Acre-Feet of Imported Water
1990–1991	242,964
1991–1992	220,271
1992–1993	575,983
1993–1994	336,636
1994–1995	472,577
1995–1996	574,299
1996–1997	511,713
1997–1998	326,845
1998–1999	473,721
1999–2000	456,555
2000–2001	328,257
2001–2002	301,203
2002–2003	357,500
2003–2004	317,649
2004–2005	493,775
2005–2006	499,054
2006–2007	241,691
2007–2008	274,340
2008–2009	326,754
2009–2010	444,538
Average	**388,816**

Source: Harder 2017, Table 2A.

No surface water has historically been, or is proposed to be, used for the subject project.

3.1.2 Groundwater

Hydrogeologic Setting

The proposed project is located within the Tulare Lake Hydrologic Region, which covers an estimated 17,000 square miles and encompasses Kings County, Tulare County, and the majority of Fresno and Kern Counties (Figure 3). Geomorphic and hydrologic features within the Tulare Lake Hydrologic Region include the San Joaquin Valley and Sacramento–San Joaquin Delta to the north, Sierra Nevada Mountains to the east, the Tehachapi Mountains to the south, and the Temblor Range to the east with Kern, Tule, Kaweah, and Kings Rivers internally draining the southern portion of the San Joaquin Valley (DWR 2006).

The proposed project is located within the Tule Subbasin at the southern part of the San Joaquin Valley. The valley is a sediment-filled depression bound by the Sierra Nevada Mountains to the east and the California Coastal Ranges to the west. Sediments within this depression forming the San Joaquin Valley are as thick as 32,000 feet deep in some locations. The Tule Subbasin of the San Joaquin Valley has a surface area of 467,000 acres. Pliocene to Holocene age continental alluvium and older alluvium, and undifferentiated continental deposits of clay, silt, sand, and gravel, underlie the proposed project location and surrounding Subbasin (Figure 4).

Aquifers within the subbasin include flood deposits, younger and older alluvium, and undifferentiated continental deposits composed primarily of permeable sand and gravel formations. These deposits are locally interbedded with lower permeability silt and clay, and in some places, shallow aquifers are semi-confined. The Corcoran Clay unit that is pervasive throughout the San Joaquin Groundwater Basin confines the deeper aquifers. The primary aquifers have been divided into four main units including the Shallow Aquifer, Deep Aquifer, Very Deep Aquifer, and Santa Margarita Formation in the southeast. The Shallow Aquifer is from 300 feet to 450 feet deep within the subbasin, with the Very Deep Aquifer extending as far as 2,300 feet below surface (Harder 2017). The Santa Margarita Formation underlies the alluvial sediments only in the southeastern portion of the Subbasin.

Groundwater is recharged mainly from streams and percolation of irrigation water. The regional groundwater flow direction within the subbasin is generally southwest from the Sierra Nevada Mountains toward a localized pumping depression.

Groundwater Quality in the Tule Subbasin

Total dissolved solids (TDS) concentrations have commonly ranged from 200 to 600 milligrams per liter (mg/L) throughout the subbasin making groundwater suitable for most irrigation purposes (DWR 2006). Water in the north and south parts of the subbasin are of calcium bicarbonate and sodium bicarbonate types, respectively. Elevated TDS (as high as 30,000 mg/L) and nitrate have historically been reported in shallow groundwater in some areas of the subbasin (DWR 2018b).

The proposed project will use groundwater only for construction and maintenance of solar generation facilities, and none of the extracted water will be used for potable or crop irrigation purposes.

Groundwater Level in the Tule Subbasin

Groundwater elevations in the Tule Subbasin fluctuate in response to groundwater pumping, climate trends, and the availability of imported water. Figure 5a depicts the relationship between climate cycles and groundwater elevations from a network of wells within the Kaweah Delta Water District to the north of the proposed project site. In general, shallow groundwater levels corresponded to the wet climate of the late 1960s, mid-1980s, and mid- to late-1990s. Significant declines in groundwater level are visible during drought periods of the late-1980s to early-1990s and the early 2000s. The overall trend (in red) shows a decline in groundwater elevations of about 40 feet from 1956 to 2010 corresponding to an average decline of about 0.75 feet per year. Similarly, Figure 5b illustrates a decline of approximately 0.90 feet per year near Visalia over the period 1940 to 2010. The trend of declining groundwater level is due in part to increased groundwater pumping for municipal and agricultural use although several other factors also influence subbasin groundwater level. DWR notes that in general, subbasin groundwater levels fluctuated but eventually recovered in 2000 to 4 feet above the 1970 level (DWR 2006). The groundwater level again declined by about 20 feet at the proposed project site in the period from 2012 to 2017 (Figure 6).

Proposed Groundwater Project Wells

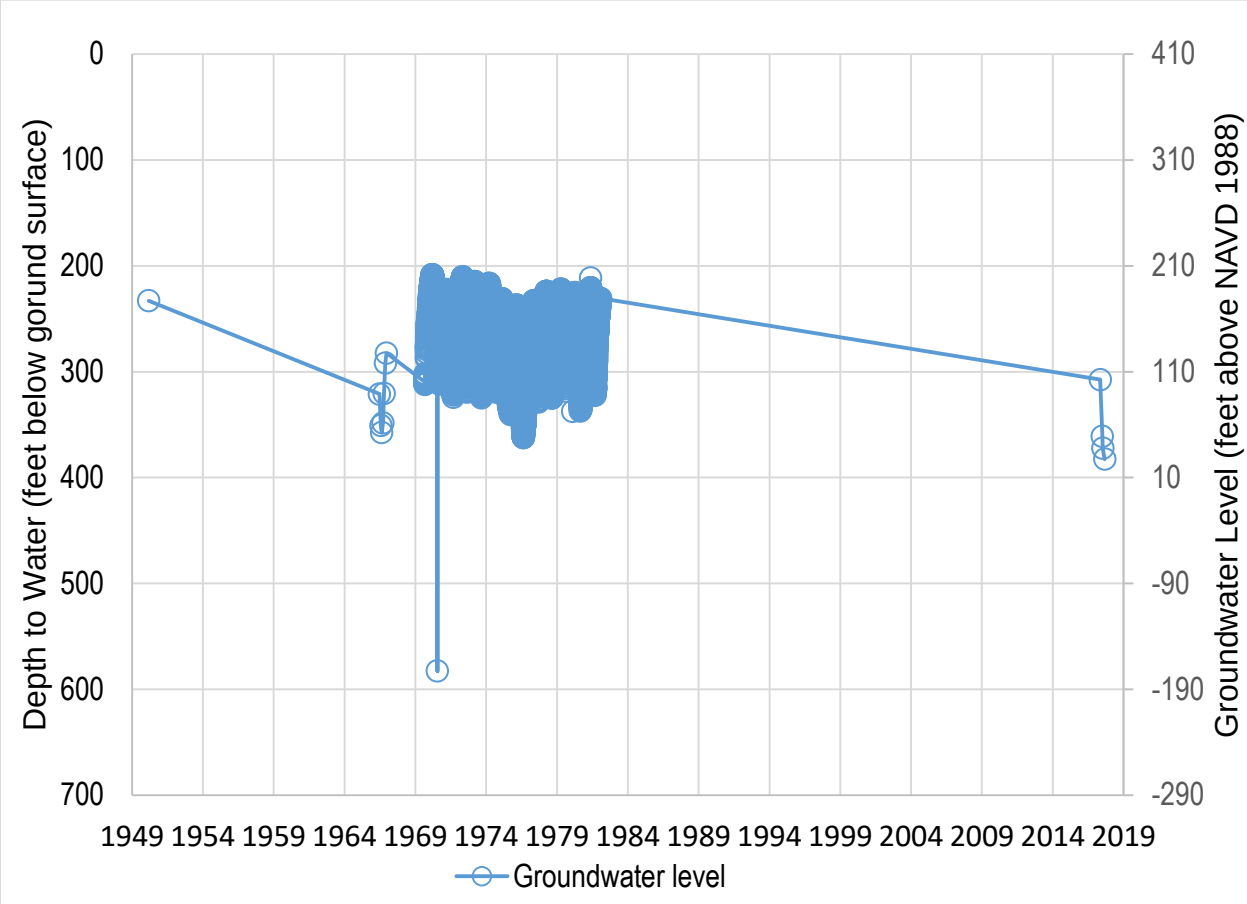
Water supply for the construction and O&M of the proposed solar project is to be from an existing on-site groundwater well (Figure 1). Information on the well was not available from the DWR Well Completion Database. However, the well was reported to be 15 inches in diameter, completed to a depth of 778 feet, and was rehabilitated in 2018 (WWS 2014). The pump is powered by a 100-horsepower natural gas engine, capable of extracting 600 gallons per minute (gpm) at a "total dynamic head" of 540 feet. The "total dynamic head" is the total equivalent height that water is to be pumped, taking into account friction losses in the pipe. If the pumping groundwater level drops, then the total dynamic head increases, thus decreasing the production

rate of the pump. Conversely, if the pumping groundwater level rises, the total dynamic head decreases, and the pump will be capable of producing a greater volume of water.

Information from nearby wells was used to determine the sufficiency of the water supply proposed for the project. A well log was available for a well (no. 276550) located in the middle of the project parcels (Figure 1). The drillers' report indicates that the well was completed in July 1988 to a depth of 903 feet (DWR 1988). The lithology encountered consisted mainly of alternating clay and sand with sandstone occurring at depths greater than 600 feet. It was screened from a depth of 423 to 903 feet below ground surface (bgs). Well no. 93492, located just west of the subject property, was completed in 1964 to a depth of 890 feet with screened interval from 611 to 881 feet. The drillers' log indicates a pump test for this well that resulted in a production rate of 711 gpm (DWR 1988).

There is limited information for groundwater level at the subject property. However, measurements taken from the proposed water supply well were reported to be 120 feet bgs in 2014 and 170 bgs in 2018. (The project land surface is 443 feet above sea level). It is unknown whether the manual groundwater level taken in 2014 and 2018 represent static conditions or if pumping in the area may have influenced the measurements. Limited data from State Well no. 022S027E30D002M, located about 2 miles to the northwest of the property, is shown in Exhibit 1 and depicted on Figure 1.

Exhibit 1. State Well Number 022S027E30D002M Hydrograph



Notes: Latitude 35°59'34.5", Longitude 119°06'23.4" NAD83. The depth of the well is 1,246 feet below land surface. Land-surface elevation 409 feet above NAVD88.

Source: USGS 2018

3.1.3 Imported Water

No imported water is proposed as a source of water supply for the project, and no existing imported water distribution facilities are currently available to the subject property.

3.1.4 Recycled Water

There is no recycled water proposed as a source of project water supply, and no source of recycled water is available to the project facility.

3.2 Water Resources Plans and Programs

The proposed project location is not within any public water systems, or agricultural or urban water districts. The subject property is within the area covered by the Tule River Basin IRWMP.

3.3 Water Supply Availability

3.3.1 Water Demand Projections

The proposed project is estimated to require 147 AF of water over 320 days during a 14-month construction period. The ongoing operational water requirement is estimated to be about 4 AFY.

3.3.2 Groundwater Resources Availability

As noted, the project is not located within the area addressed by any UWMP. Water resource availability for the project is restricted to groundwater, the availability of which is related to conditions throughout the Tule Subbasin. There is no comprehensive planning document for the subbasin that quantifies the future supply and demand throughout the subbasin. However, the SGMA process now under way and the related groundwater sustainability plan will provide such information including a road map for achieving sustainability (see Section 3.1). Review of the subbasin sustainable yield in the context of the proposed project shows that adequate groundwater supply is available and will likely remain so. The sustainable yield is "The maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result" (CWC 10729 (w)). Undesirable results are defined by the legislation and include chronic lowering of groundwater levels, reduction of groundwater in storage, land subsidence, seawater intrusion, degraded water quality, and loss of groundwater-dependent ecosystems.

Normal, Single-Dry, and Multiple-Dry-Year Supply Considerations

Figure 5a shows groundwater depth and rainfall from 1956 to 2010. The light blue bars show each year's rainfall as a percent of normal. Normal annual rainfall in the City of Visalia is 10.94 inches (U.S. Climate Data 2018). The dark blue line shows the historical average groundwater level in feet bgs, and the red line shows the groundwater level trend.

The impact of single-dry-years and multiple-dry-years on groundwater levels is apparent from Figure 5a. The dry period from 1987 to 1992 resulted in a precipitous groundwater level decline of approximately 69 feet. The following wet period from 1993 to 1998 resulted in groundwater level recovery of nearly 40 feet. The impact of single-dry-years on groundwater level is less apparent because there was rarely a single-dry-year in the midst of normal or wet years. However, 1976 and 1977 were unprecedented years of low rainfall and resulted in a groundwater

level decline of about 11 feet, all of which was recovered in the following wet year of 1978. These data indicate that the groundwater levels within this part of the subbasin respond to climate variability. Note that imported water is an essential component of the overall basin water budget, averaging about 389,000 AFY. On average, imported water has provided a consistent and relatively stable water supply since 1991 (Table 2).

Groundwater Level Trends

The red trend line on Figure 5a illustrates that the historical average groundwater level has declined at a rate of about 0.75 feet per year. This rate of decline may be put into context of the proposed project well. In 2018, a water level of 170 feet bgs was measured in the proposed project supply well. Records show that the pump in the well is set at 660 feet bgs. At the average historical rate of groundwater level decline, it would take hundreds of years for the groundwater level to drop below the existing pump intake. However, such a decline will not occur due to the SGMA prohibition of "significant and unreasonable" groundwater level declines (see Section 3.1).

3.3.3 Water Supply and Demand Comparison

The sustainable yield of the Tule Subbasin, based on a period from 1991 through 2010, is estimated to be 257,725 AFY. The area of the subbasin is 475,895 acres. Therefore, the per-acre yield is 0.54 AFY per acre (Harder 2017). The sustainable yield, if applied to the project area is:

375 acres x 0.54 AF/acre = 202 AFY

The maximum estimated project demand is:

147 AF in 320 days = 0.46 AF/Day

Conservatively assuming that a similar pumping rate would continue for a full year:

365 - 320 = 45 days x 0.46 = 20.7 AF

The resulting maximum demand for the construction period is:

147 AF + 20.7 AF = 168 AFY

Thus, the maximum required water for the peak demand of the proposed project is about 15% less than that available within the sustainable yield for the property. When extrapolated over a 20-year planning period, the total water demand averaged over the 20 years is:

147 AF + (4 AF x 20 years) = 227 AF / 20 years = 11.35 AFY

This amounts to just 5.62% of the estimated sustainable yield for the proposed project area only.

The historical pumping record may also be used to evaluate the water supply adequacy of the proposed water supply. As shown in Table 1, the pumping rate required for the construction phase of the project is 312 gpm. A pump test performed for well no. 93492, west of the project property yielded 711 gpm, almost twice that required for the construction phase of the proposed project, assuming that no on-site storage would be available. In addition, the pumping capacity of the proposed water supply well is 600 gpm at a total dynamic head of 540 feet with the pump intake located approximately 600 feet bgs. The groundwater level in the well was reported to be 170 feet bgs in 2018, indicating that the pumping capacity of the existing pump far exceeds the requirement for maximum project water demand.

Water demand for the ongoing operation of the proposed project is estimated to be a small fraction (4 AFY) of that for the construction phase. Therefore, the water supply is adequate for the O&M water demands of the proposed project.

The subject property is not within the jurisdiction of any UWMP or public water system. Groundwater is the only proposed source of water for the proposed project. Therefore, water supply considerations required for this Water Supply Assessment were based on the adequacy of water within the groundwater basin, beneath the subject property, and the adequacy of the proposed well facilities throughout the planning horizon of 20 years. These calculations are summarized in Table 3 and indicate that the project water demand is within the available water supply through the project planning period.

Table 3
Water Supply and Demand Comparison for Present through 2040

	Construction (2019–2020)			**Operations and Maintenance (2020–2040)**		
	Average Water Year	*Single-Dry-Year*	*Multi-Year Drought*	*Average Water Year*	*Single-Dry-Year*	*Multi-Year Drought*
Basin Sustainable Yield						
Projected Available Supply Based on Tule Subbasin Sustainable Yield (acre-feet)[1]	202	202	202	202	202	202
Project Demand (acre-feet)	147	147	147	4	4	4
Surplus/Deficit	**+55**	**+55**	**+55**	**+198**	**+198**	**+198**
Well Pumping Capacity						
Projected Available Supply Based on Well Production Capacity (gpm)	600	600	600	600	600	600
Project Demand (gpm)[2]	312	312	312	8.5	8.5	8.5
Total	**+288**	**+288**	**+288**	**+591.5**	**+591.5**	**+591.5**

Notes:
1 The production rate of groundwater wells is not climate dependent.
2 Based on 8-hour/day water-use periods.

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4 CONCLUSIONS

This WSA has evaluated the water supply for the construction and O&M of the proposed project in the context of future water demand and planning. The water demand of the prosed project was evaluated in relation to climate, groundwater levels, subbasin sustainable yield, and extraction facilities. Based on this evaluation, adequate water supplies for the construction and O&M of the proposed project are available. The sole source of the proposed project water is groundwater from the Tule Subbasin of the San Joaquin Valley Groundwater Basin. The proposed Deer Creek Solar Project's temporary peak demand of 147 AFY (during a 14-month period) and 4 AFY O&M demand is not expected to adversely affect groundwater supply in the Tule Subbasin.

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5 REFERENCES

DWR (Department of Water Resources). 1988. Water Well Drillers Report, State Well No. 22/27-33. Prepared by Grabow Well Drilling Inc. July 1988.

DWR. 2006. "San Joaquin Valley Groundwater Basin Description – Tule Subbasin." *DWR Bulletin 118 (California's Groundwater)*. Updated January 20, 2006. https://www.water.ca.gov/Programs/Groundwater-Management/Bulletin-118.

DWR. 2018a. "Water Management Planning Tool" [map data]. August 2018. https://gis.water.ca.gov/app/boundaries/.

DWR. 2018b. "Basin Prioritization." June 2018. https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization.

DWR 2018c. "Critically Overdrafted Basins." https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins.

Harder (Thomas Harder & Co.). 2017. *Hydrogeological Conceptual Model and Water Budget of the Tule Subbasin*. Volume 1. August 1, 2017.

TRBIG (Tule River Basin IRWMP Group). 2018. *Tule River Basin 2018 Integrated Regional Water Management Plan*. Draft. June 2018.

U.S. Climate Data. 2018. "Climate: Visalia, California." August 2018. https://www.usclimatedata.com/climate/visalia/california/united-states/usca1204.

USGS (U.S. Geological Survey). 2018. "National Water Information System: Mapper." https://maps.waterdata.usgs.gov/mapper/index.html. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Work-With-Us/Grants-And-Loans/IRWM-Grants/Files/Prop-1-Plan-Review-Process/IRWM-Plan/Tule-River-Basin/Tule-River-Basin-IRWMP-33018.pdf.

WWS (Water Well Specialties). 2014. "Well Evaluation and Rehabilitation Documentation." July 14, 2014.

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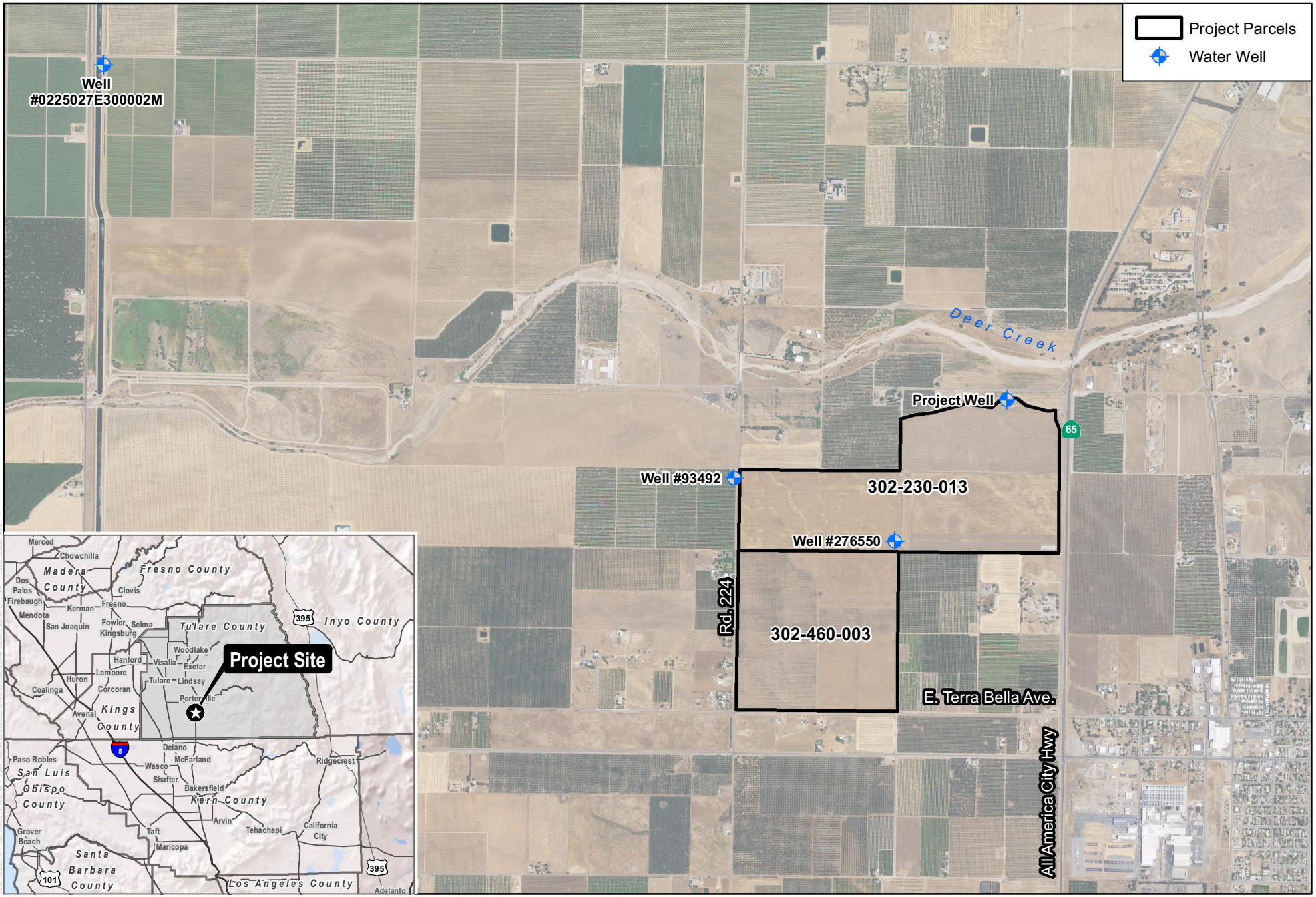

SOURCE: NAIP 2016, ESRI

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0 1,000 2,000 Feet

FIGURE 1

Project Location

Deer Creek Solar Project Water Supply Assessment

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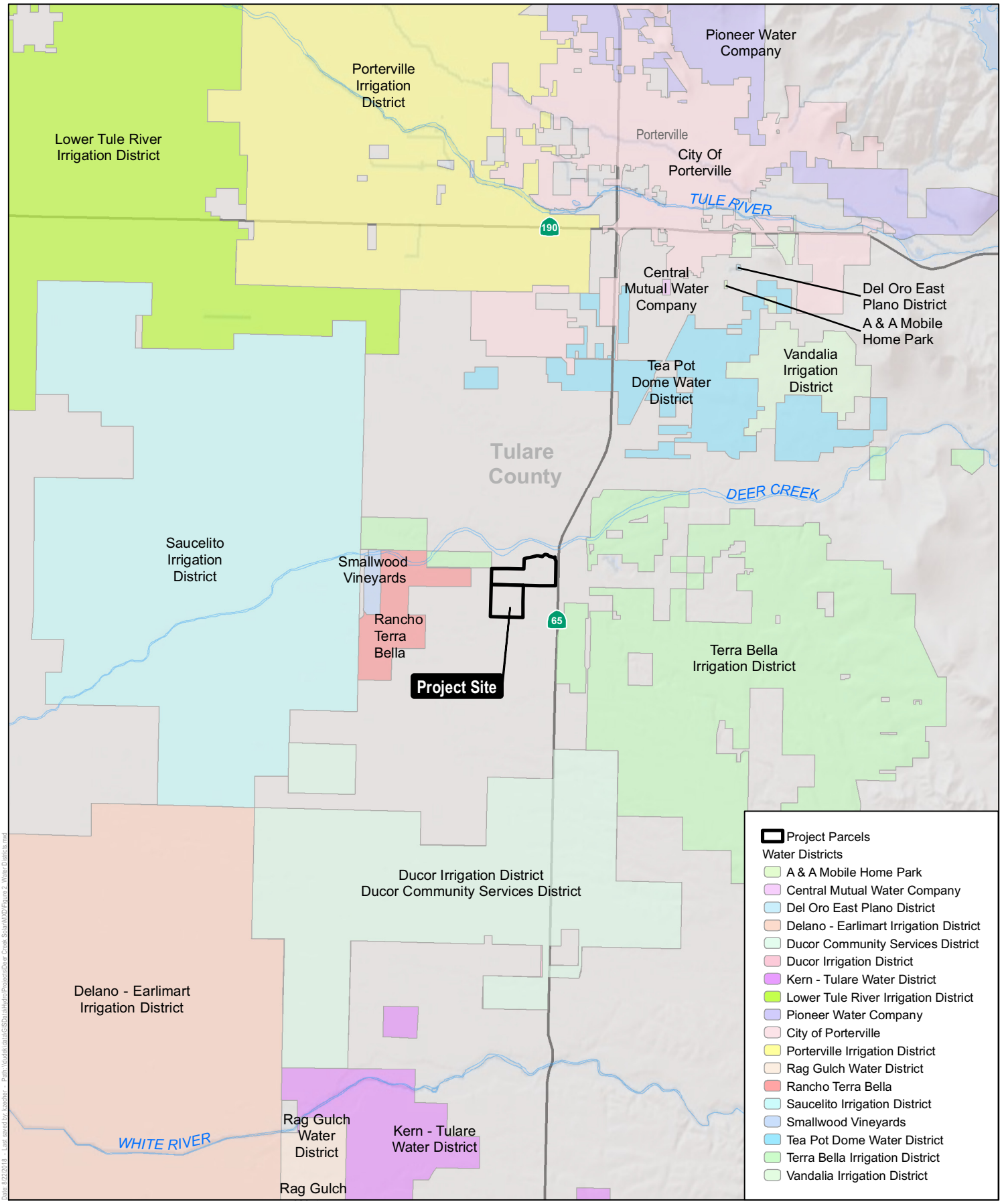

SOURCE: USGS

DUDEK

0 1 2 Miles

FIGURE 2

Water Districts

Deer Creek Solar Project Water Supply Assessment

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SOURCE: USGS

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0 10 20 Miles

FIGURE 3

Hydrologic Areas

Deer Creek Solar Project Water Supply Assessment

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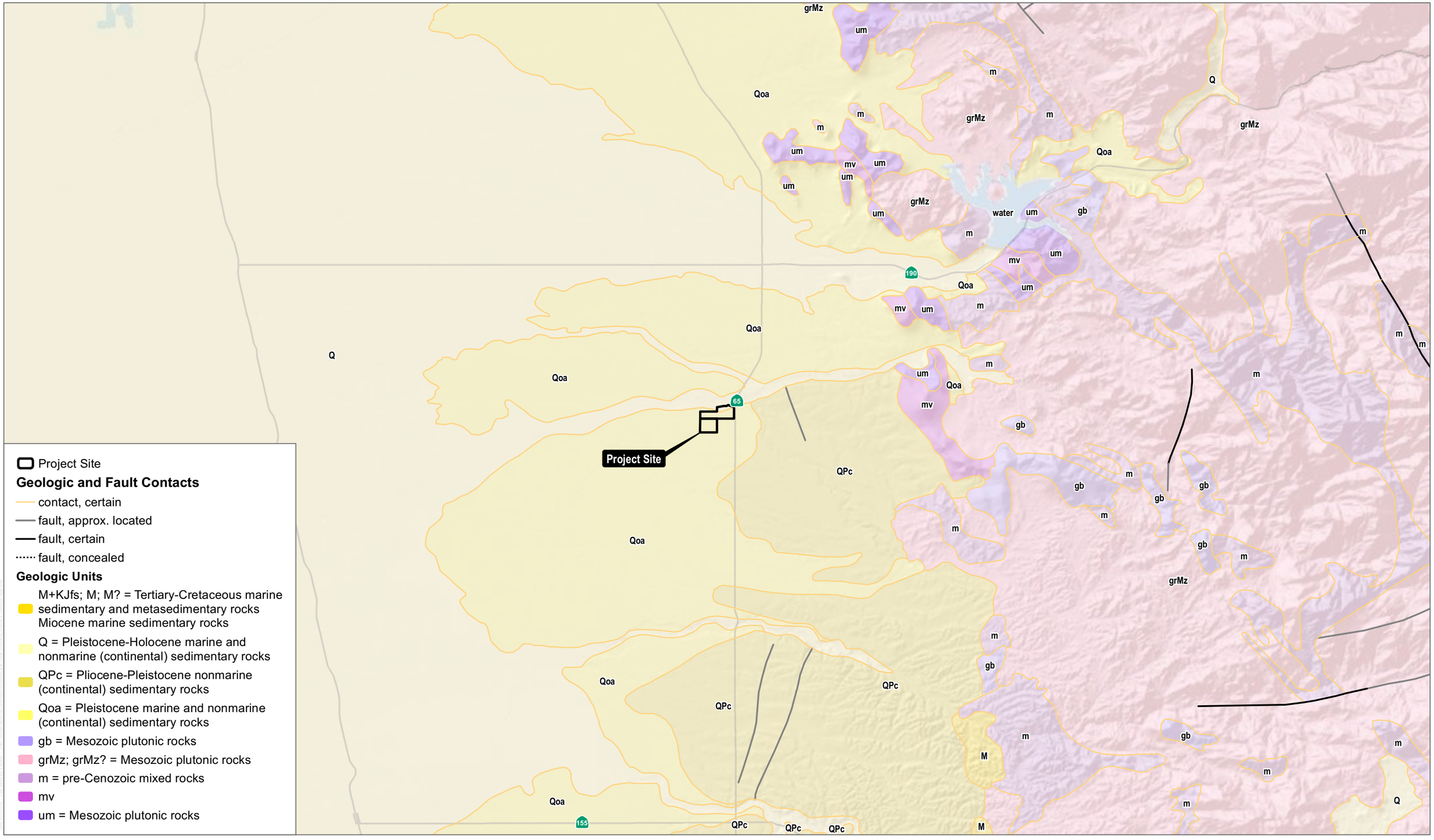

SOURCE: California Geologic Survey 2010

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FIGURE 4

Geologic Map

Deer Creek Solar Project Water Supply Assessment

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Figure 5a
Historical Average Depth to Groundwater (Fall Measurement)
Kaweah Depth Water Conservation District

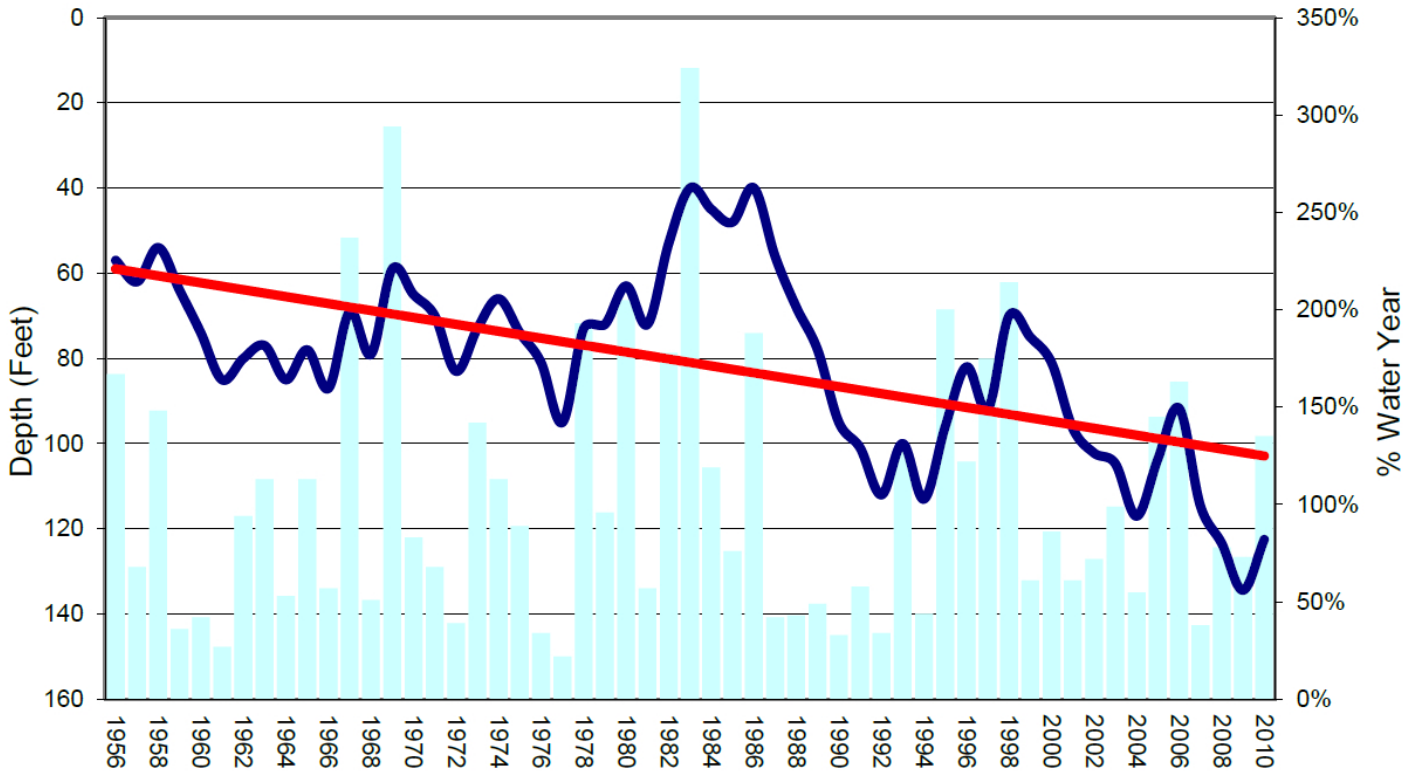
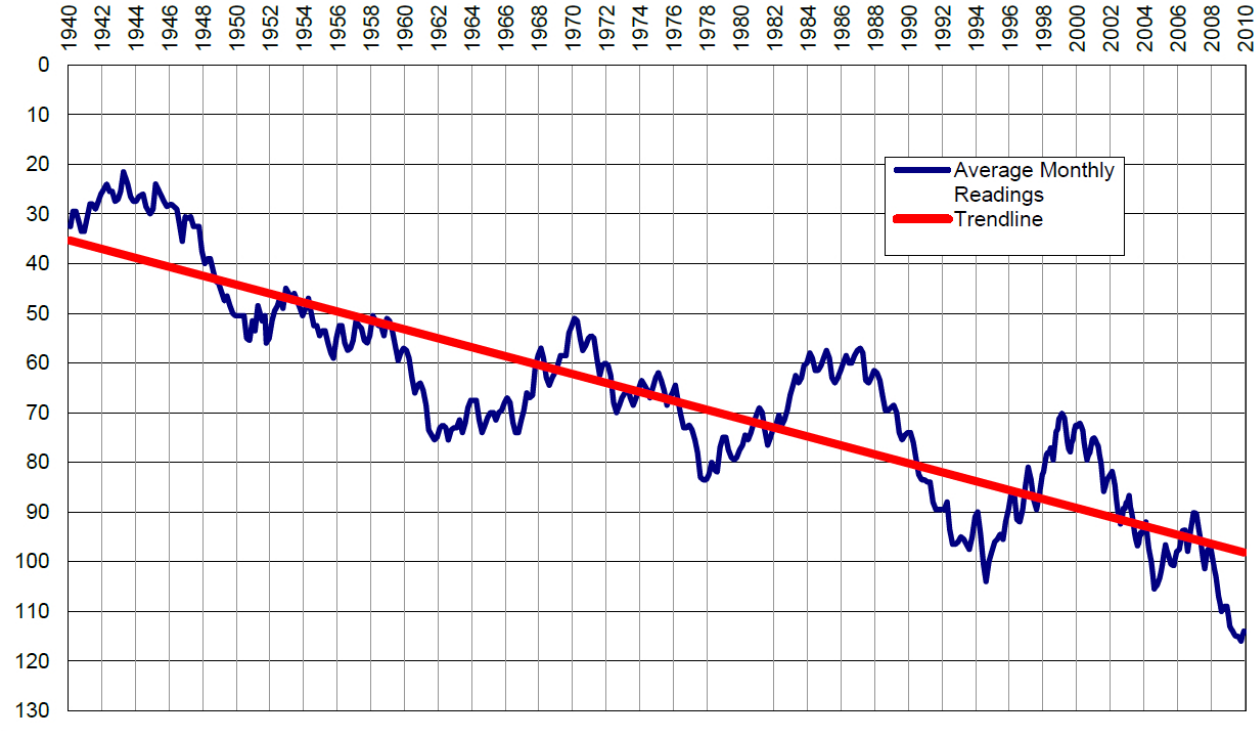


Figure 5b
Historical Average Depth to Groundwater (Monthly Measurement)
Visalia



SOURCE: Kaweah Delta WCD, 2010 Annual Report

FIGURES 5a and 5b
Historical Average Depth to Groundwater - Kaweah Delta and Visalia

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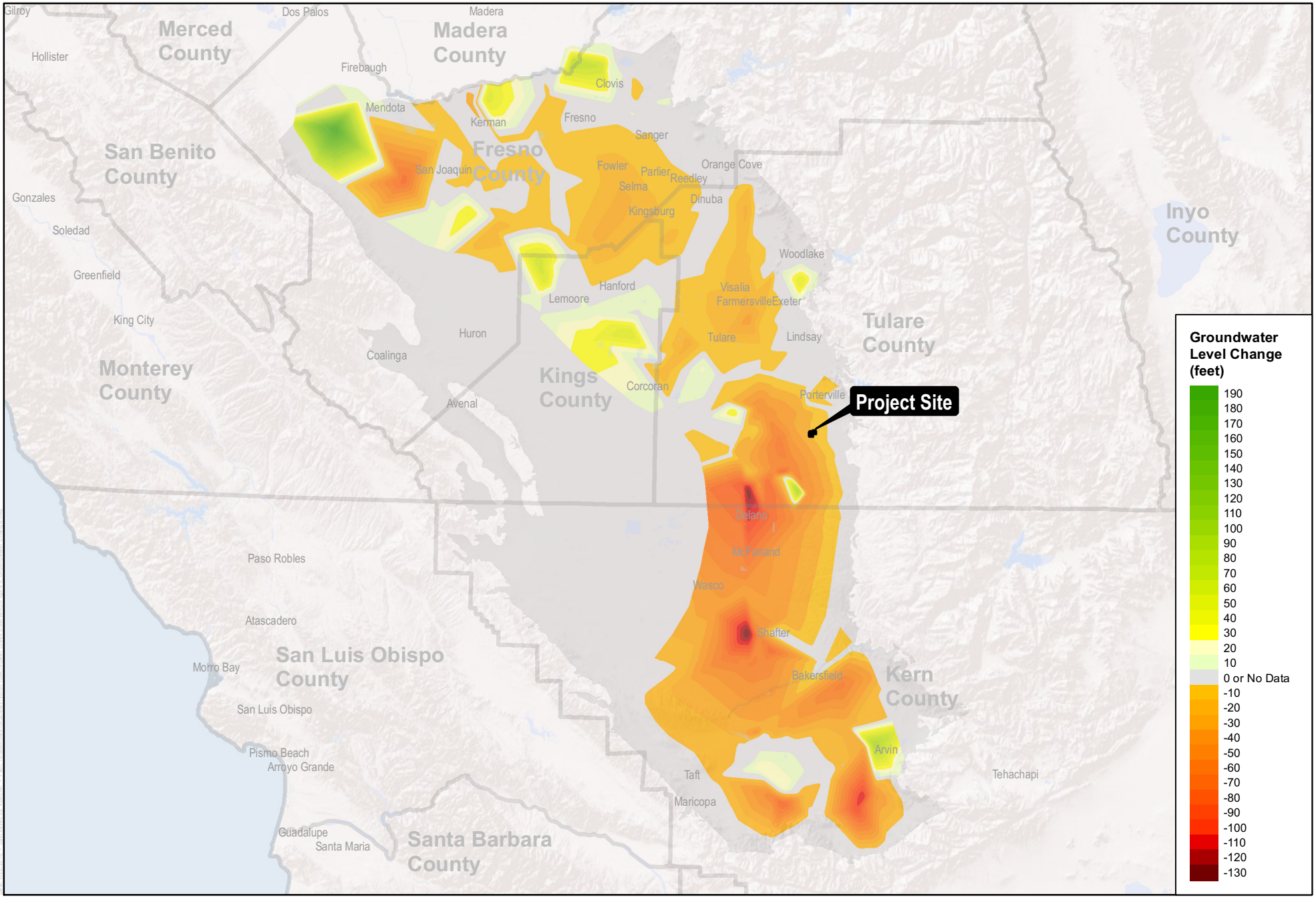

SOURCE: GICIMA, 2018

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N

0 4.5 9 18 27 36 Miles

FIGURE 6

Groundwater Level Change, 2012-2017

Deer Creek Solar Project Water Supply Assessment

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