Draft
Environmental Impact Report

SCH# 2022060193

Volume 2

Appendices A through F

JASMINE SOLAR PROJECT

by SF Jasmine, LLC *(PP22401)*

Conditional Use Permit No. 3, Map No. 160
Williamson Act Land Use Cancellation 22-01

Kern County
Planning and Natural Resources Department
Bakersfield, California

October 2023

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Technical Assistance by:
Kimley-Horn

October 2023

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Appendices – Volume 2

NOTE TO REVIEWER OF ELECTRONIC FILES:

To assist you in reviewing this electronic document, "bookmarks" and/or "links" have been provided for easier navigation between sections. When available, bookmarks are located in the panel to the left. Links are highlighted in BLUE in the Table of Contents. Clicking on either the bookmarks or links will take you to the selected item. This document may consist of multiple linked PDF files. If saving this document to your computer, you must save all corresponding files to a directory on your hard drive to maintain the manner in which these PDF documents are linked.

Appendix A: Initial Study/Notice of Preparation and Notice of Preparation Responses

Appendix B: Agricultural Conversion Study

Appendix C: Air Quality and Greenhouse Gas Study

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Appendix E: Biological Resources Assessment

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Appendix A

Initial Study/Notice of Preparation and Notice of Preparation Responses

NOTICE OF PREPARATION/INITIAL STUDY CHECKLIST

Jasmine Solar Facility
by SF Jasmine, LLC

Conditional Use Permit No. 30, Map No. 160
Williamson Act Land Use Cancellation 22-01

PLN21-00094
(PP22401)

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June 2022

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Introduction

Pursuant to the California Environmental Quality Act (CEQA), the Kern County Planning and Natural Resources Department (County) will initiate the preparation of an Environmental Impact Report (EIR) for the Jasmine Solar Project in the unincorporated area of Kern County, California. The proposed Jasmine Solar Project (proposed project) is a proposal by SF Jasmine, LLC (project proponent) to construct and operate a photovoltaic (PV) solar facility and associated infrastructure to generate up to 70 megawatts (MW) of renewable electrical energy and a Battery Energy Storage System (BESS) for storing approximately 68 megawatt hours (MWh) of energy. The BESS would occupy approximately 1 acre of the approximate 511.47-acre solar facility. Overall, the project study area consists of an approximately 527-acres and includes the area needed for transmission line improvements.

1. Project Description

1.1. Project Location

The project site is located on an approximate 511.47-acre parcel on the northwest corner of the intersection of Old River Road and Copus Road in unincorporated Kern County, California. Please see *Figure 1: Regional Vicinity Map and Figure 2: Local Vicinity Map.* The project site is located approximately four (4) miles west of Interstate 5 and 2.5 miles north of State Route 166, in an unincorporated area of western Kern County, CA. The proposed project site is made up of one privately owned parcel, totaling approximately 511.47 acres (Assessor's Parcel Number (APN): 295-131-12). The project encompasses a study area that is larger than the area requested to be permitted. The study area includes a portion of two parcels (APNs 295-132-15 and 295-132-12) where only interconnection tie lines will be placed. Thus, the overall total study area for the project is approximately 527 acres. Please see *Figure 3: Parcelization Map.* Primary access to the project site is proposed off of Copus Road and Old River Road.

1.2. Environmental Setting

The project site is privately owned previously disturbed tilled agricultural land located in the Valley Region in southwestern unincorporated Kern County. The project site is located solely within the jurisdiction of Kern County and, is therefore, entirely within the boundaries of the Kern County General Plan and subject to the Kern County Zoning Ordinance. The project site is located in Zone Map 160 and is designated by the Kern County General Plan as Map Codes 8.1 (Intensive Agriculture), 8.1/2.3 (Intensive Agriculture/Shallow Groundwater) and 8.1/2.5 (Flood Hazard). The majority project site is zoned A (Exclusive Agriculture) and is wholly contained within Agricultural Preserve Number 12. Please see *Figure 4: Existing General Plan Designations,* and *Figure 5: Existing Zoning Classifications*.

The project is situated on property with past agricultural uses, and parcel 295-131-12 is currently subject to an existing Williamson Act Land Use contract, this contract will be cancelled as part of this project. Please see *Figure 6: Existing Williamson Act Contracted Land* The surrounding area is largely dominated by agricultural uses. The project site is designated by the California Department of Conservation (DOC) as Farmland of Statewide Importance and Grazing Land, please see *Figure 7: California Important Farmland Map*.

The project site is within the San Joaquin Valley Basin of the San Joaquin Valley Air Pollution Control District.

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs for the project site, portions of the project site are located within a 100-year flood area (Zone A, no base flood elevations determined). Other portions of the project site are not within a flood area (Zone X, area of minimal flood hazard) (FEMA, 2021). Please see *Figure 8, FEMA Floodplain Map*.

The project site has one cancelled and one permitted Oil & Gas Well located on site as shown in *Figure 9: Oil and Gas Well Locations*. The wells are in the southerly portion of the site near Copus Road. The permitted well is a part of the Grapevine Energy LLC Bordeaux Facility. The project site is not located within the County's NR (Natural Resources) or PE (Petroleum Extraction) Zone Districts. The project site falls under Mineral Resource Zone (MRZ) 1 for Portland Cement Concrete (PCC)-Grade Aggregate, designated by the Department of Conservation's State Mining and Geology Board. This identifies the area as having adequate information that indicates no significant mineral deposits are present (CGS, 2009). A small portion of APN 295-131-12 located on the south side of Copus Road is designated 8.4 Mineral and Petroleum by Kern County's General Plan. However, the proposed project would not result in any construction or improvements on this portion of the parcel.

Table 1: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, *and Acreage*, below identifies the individual parcels, their respective assessor parcel numbers (APN), acreages, and existing zoning designations. No changes to the zoning are proposed.

TABLE 1: PROJECT ASSESSOR PARCEL NUMBERS, EXISTING MAP CODES, EXISTING ZONING, AND ACREAGE

APN	Existing Map Code Designation	Existing Zoning	Acres
295-131-12	8.1, 8.1/2.3, 8.1/2.5	A	511.47
		Project Totals	480

General Plan Map Code:
8.1 = Intensive Agriculture (Min. 20 Acre Parcel Size), 2.3 = Shallow Ground Water, 2.5 = Flood Hazard
Zone Designation:
A = Exclusive Agriculture, A-1 = Limited Agriculture, C-2 = General Commercial, PD = Precise Development Combining,

Surrounding Land Uses

Table 2: Existing Project Site and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning, identifies the existing land use, the existing general plan land use designation, and the existing zoning for the project site. Additionally, such conditions are described for adjacent lands to the north, east, south, and west of the project site.

TABLE 2:EXISTING PROJECT SITES AND SURROUNDING PROPERTIES, EXISTING LAND USE, GENERAL PLAN MAP CODE DESIGNATIONS, AND ZONING

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Project Site	**Agricultural**	**8.1 (Intensive Agriculture); 8.1/ 2.3 (Intensive Agriculture / Shallow Ground Water) 8.1/ 2.5 (Intensive Agriculture / Flood Hazard)**	**A (Exclusive Agriculture)**
North	Agricultural, Vacant Land	8.1 (Intensive Agriculture) 8.1/2.5 (Intensive Agriculture/Flood Hazard) 8.3 (Extensive Agriculture) 8.5/2.5 (Resource Management/Flood Hazard)	A (Exclusive Agriculture)
South	Agricultural, Vacant Land	8.4/2.3 (Mineral and Petroleum/Shallow Ground Water) 8.1 (Intensive Agriculture) 8.1/2.3 (Intensive Agriculture/Shallow Ground Water)	A (Exclusive Agriculture)
East	Agricultural, Vacant Land	8.1 (Intensive Agriculture) 8.1/2.3 (Intensive Agriculture/Shallow Ground Water) 8.1/2.5 (Intensive Agriculture/Flood Hazard)	A (Exclusive Agriculture) C-2 General Commercial A-1 Limited Agriculture
West	Agricultural, Vacant Land	8.1 (Intensive Agriculture) 8.1/ 2.3 (Intensive Agriculture / Shallow Ground Water)	A (Exclusive Agriculture)

Existing land use in the vicinity of the project site generally includes undeveloped lands, agricultural lands, access roadways, and the California Aqueduct. The PG&E Lakeview substation is approximately 1.5 miles east of the proposed project facility. A few rural residential uses and commercial developments are sparsely located in the surroundings areas as well.

The sensitive receptor closest to the project site is the rural residence approximately 240 ft south of the project site. The nearest park is Buena Vista Aquatic Recreation Area, approximately 10.5 miles northwest of the project site. The closest school to the site is Lakeside Elementary, located approximately 8 miles north of the project site.

The proposed project would be served by the Kern County Sheriff's Department for law enforcement and public safety services, with the closest substation being the Lamont Substation, located at 12022 Main Street (KCSO, 2022). Fire protection and emergency medical services would be provided by the Kern County Fire Department, with the closest station being Fire Station #53, located at 9443 Taft Hwy, and Bakersfield and Mercy Hospital located at Truxtun Ave in Bakersfield for medical care and emergency services.

The project is not within the boundaries of any airport as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP) (County of Kern, 2012). The nearest public airport is the Bakersfield Municipal Airport, located approximately 17 miles to the northeast.

1.3. Project Description

Project Overview

The Jasmine Solar project is a proposed photovoltaic (PV) solar facility with associated infrastructure on approximately 511.47 acres of privately-owned land in southwestern Kern County. As stated above, the proposed project would generate up to 70 MW of renewable electrical energy. The project also includes the installation of an associated BESS with a 1- acre area of the proposed facility boundary, capable of storing approximately 68 MWh of energy. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance (O&M) facilities (See *Figure 10, Proposed Site Plan*).

Implementation of the project as proposed includes the following requests:

- Conditional Use Permit (CUP 30, Map No. 160) to allow for the construction and operation of a 70 MW utility-scale solar facility pursuant to Chapter 19.12.030.G of Kern County Zoning Ordinance.
- Cancellation of a Williamson Act Contract to be processed for APN 295-130-12

The power generated on the project site would assist the State in complying with the Renewables Portfolio Standard under Senate Bill 350, which requires that by December 31, 2030, 50 percent of all electricity sold in the state shall be generated from renewable energy sources. The power generated on the project site would be sold to California investor-owned utilities, municipalities, community choice aggregators, or other purchasers in furtherance of the goals of the California Renewable Energy Portfolio Standard. The project has an anticipated operational life of up approximately 30 years. At the end of the project's operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed or if it would seek an extension of its CUP. If any portion of the project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

1.4. Project Facilities, Construction, and Operations

Project Facilities

The project facilities would include the following components, which are described in greater detail thereafter:

- Solar PV modules and trackers
- Inverter and medium voltage transformers
- Electrical Collection and Distribution System
- Project Substation
- Telecommunications
- Meteorological Data Collection System
- Battery Storage Component

- Lighting
- Signage
- The Generation-Tie
- Access Roads
- Lakeview Substation

Solar PV Modules and Trackers

The proposed Facility would utilize PV modules and trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The tracking systems are supported by metal posts (piles) that are driven into the ground with a pile driving machine. Pile placement begins with a precise surveyed layout, ensuring proper positioning of tracker assembly parts. Affixed to the top of each pile is a pile cap and bearing assembly that supports and allows proper movement of the torque tube assembly. Single-axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with a mechanical drive arm and tube assembly that "pushes and pulls" the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small geared motor mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The panels are typically constructed of blue or black glass. A plastic binding material and frame provides structural rigidity. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed Facility would be certified to comply with industry standard quality testing. Panels would be electrically connected. The proposed Facility will be designed in accordance with local and state codes and regulations. The final panel selection would be determined at the detailed project-engineering phase per market availability.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS.

The proposed Facility's panels would be organized in rows in a uniform grid pattern, with each row separated by between 10 to 20 feet (from post to post). Another mechanical feature of the proposed Project's tracker system includes a wire management system that would provide support and containment of the DC wires used to collect the output of the panels and move output to the PCS. The panel and tracker features allow for a natural light regime between and under the panels, supporting the co-management of solar energy generation, agriculture, and wildlife.

Inverters and Medium Voltage Transformers

The proposed Facility inverters, transformers, and other electrical equipment comprise each PCS. The footprint of each PCS, which is generally mounted on a concrete pad or piles, would be approximately 12 feet by 30 feet. The proposed project would require approximately 40 PCS, depending on final design details. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5-kV). The project would use Power

Electronic HEM Central inverters or equivalent and one medium voltage transformers per inverter. Each inverter and transformer would be installed as per manufacturer's requirements.

Electrical Collection and Distribution System

The DC output of multiple rows of PV modules connected in series would be collected through one or more combiner boxes and associated electrical wiring located throughout the project site. The power would be delivered via an underground cable network to the inverters in the electrical equipment enclosures at the PCS, described above. Multiple transformers electrically connected in series would deliver AC power to the project Substation located on-site.

Project Substation

The project Substation is proposed to be in the southeast corner of APN 295-132-16 and 295-270-28. The project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. The overall footprint of the project Substation is anticipated to be approximately 200 by 200 feet and approximately 100 feet in height at its apex. The project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. The project Substation would also contain a control house building approximately 15 by 40 feet with an overall height of less than 20 feet. The project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

The project Substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Operations and Maintenance Facilities

The project may include the construction of an O&M building with associated on-site parking (unpaved) within the project site. The O&M building may be co-located with the substation. Roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California Accessibility Regulations.

Telecommunications

The proposed Facility would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line, installed above and/or below ground, attached to either existing utility lines located outside of the project or the new gen-tie. The proposed Facility telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the point of connection to existing telecommunications infrastructure and the Lakeview Substation. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection to the existing telecommunication facilities would be within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) coming into the Substations as part of the standard substation design criteria. Below ground installations are usually installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles.

Telecommunication lines may also be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The site will also have internal Facility telecommunications expected to be provided by the local provider in the area.

Meteorological Data Collection System

The proposed Facility would require up to four meteorological data collection systems. The systems, which would be mounted at various locations throughout the proposed Facility, would include a variety of instruments to collect meteorological data. Meteorological data would be collected at the maximum height of the solar panels or approximately 15 feet above the ground.

Energy Storage System

The proposed project would include a BESS, which would be located immediately adjacent to the proposed substation. The BESS would provide approximate 68 MWh of energy storage. The BESS system would consist of commercially available lithium-ion batteries housed in enclosures. The enclosures would be approximately 8 feet wide by 40 feet long by 9.5 feet high (2.4 meters wide by 12 meters long by 2.9 meters high). The battery storage component would have a footprint of approximately 1 acre and would be immediately adjacent to the Project's Substation. Site preparation required for the battery storage enclosures requires leveling the area for a flat concrete foundation.

The proposed lithium-ion batteries would principally comply with the UL 9450 standard for outdoor energy storage enclosures. The project will be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The Applicant would select BESS providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of lithium-ion stationary BESS.

The project would include current best practices for fire safety. The BESS would contain a safety system as required by NFPA 855 and tested under the UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The enclosure wall is designed to contain the fire and prevent propagation.

The Emergency Response Plan is used to train local emergency response personnel during development and operations of the proposed Facility. The plan will be completed in accordance with existing state regulations (HSC§ 25504(b); 19 CCR §2731; 22 CCR §66262.34(a)(4)). The contents of the Emergency Response Plan would comply with existing state regulations and include the following components and involve training for the local fire responders:

- Developed in consultation with Fire Dept. and BESS Supplier
- Defined roles and responsibilities
- Potential emergency scenarios including fire
- On-site training of fire personnel and on-site project staff
- Training for local first responders

Lighting

The proposed facility lighting would allow for ongoing maintenance and security, Low-level lighting may be installed at the entry gates, project substation, inverter pads, and O&M Building. Proposed facility

lighting outside of the substation would be downward facing shielded or otherwise modified to minimize emission of light or glare beyond the property line, or upward into the sky.

Security

Security would be maintained through installation of a six-foot tall wire fence topped by one foot-tall three-strands of barbed wire. Fencing would be "wildlife friendly" with a five to seven-inch diagonal grid width at the lower portion to allow for the safe passage of small and medium sized mammals. The fence would include fence slats above the bottom diagonal grid pattern or similar visual screening materials along the southwestern segment that is adjacent to an existing residence. A security company would be contracted by the Applicant for security purposes during construction. Should the security system detect the presence of unauthorized personnel, the plant manager or surrogate would verify appropriate response and appropriate local authorities would be notified, if necessary. A Knox-Box containing keys for the proposed Facility would be installed to permit emergency access to the site.

Signage

Proposed Facility signage installed on the fence in the vicinity of the main entry gates would identify the project owner, operator, and emergency contacts and provide safety and security information.

Small-scale signage would be posted at the main entry gates and intermittently along the perimeter fencing on exterior parcel boundaries, to indicate "No Trespassing" and "Private Property" for security and safety purposes. All signage would conform to Kern County signage requirements.

The Generation-Tie

The 70 kV gen-tie would interconnect the project Substation to the existing PG&E Lakeview Substation. The gen-tie is proposed to extend approximately 0.60 miles to the east from the project site to connect to the Substation. The gen-tie right-of way would be from 25- to 75-feet-wide. Approximately 25 new poles would be installed to accommodate the gen-tie. The new poles would be constructed of either steel or wood at a maximum of 125 feet tall.

Access Roads

The proposed Facility would be primarily accessed off Copus Road and Old River Road adjacent to the project site and gen-tie corridor. Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

Lakeview Substation

The existing Lakeview Substation, operated by PG&E, would require modifications within the existing footprint of the substation to accommodate the proposed project gen-tie connection. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment, would be placed within the existing fenced area at the Lakeview Substation.

Construction Activities

The construction period for the proposed project from site preparation through construction and testing is expected to commence in 2023 and would extend for approximately 12 months.

Construction of the proposed project would include the following activities:

- Construction Schedule and Personnel Requirements
- Solar Facility Access
- Parking and Traffic
- Construction Safety
- Electricity
- Water
- Site Preparation and Grading Activities
- Dust Control Diesel Powered Equipment
- Storm Water Protection
- Solid Waste
- Commissioning and Energizing
- Security
- Fire Suppression and Safety
- Land Management
- Agricultural Operations
- The Lakeview Substation and PG&E Upgrades

Construction Schedule and Personnel Requirements

Construction and testing of the proposed Facility would take approximately 12 months to complete and is anticipated to begin in 2023. The proposed Facility elements would be completed either in phases or concurrently over the construction period. Crews would typically work five 8-hour days per week. Saturday, Sunday, evening, and night work may also be required due to the scheduling of system outages and construction schedules. The peak construction workforce is anticipated to be 550 workers, depending on scheduling constraints.

Solar Facility Access

Access to the proposed Facility would be off of Copus Road and Old River Road adjacent to the project site. Installation of the Facility may include minor improvements to the existing paved roads and driveways.

Copus Road and Old River Road, are two-lane, fully surfaced regional transportation route. The access driveway from either Copus Road or Old River Road would include construction of turn pockets for exit and entry to facilitate the delivery of equipment and personnel to the proposed Facility during construction

and operations. The turn pockets would be constructed with 6 to 8 inches of aggregate base course to be designed according to California Department of Transportation (Caltrans) specifications, as needed.

Interior construction access within the solar array area would be from approximately 20-foot-wide access and maintenance roads and perimeter roads. The access and interior driveways would be constructed in accordance with Kern County requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

Parking and Traffic

During construction, employees would be encouraged to carpool, and park within the proposed Facility boundary. The proposed project requires the temporary construction of approximately 1.5 acres within the proposed Facility for all-weather parking spaces, temporary office facilities, and equipment staging area. This area could be expanded to accommodate increased worker needs.

During construction, the number of workers on the site would vary daily. During non-peak construction approximately 60 workers would be on-site daily, while at the peak of construction, up to 550 workers would be on-site on a given day. In addition, there would be an estimated eight round trips per day during non-peak construction required to deliver materials and equipment to the project site; up to 25 round trips per day would be required during peak construction. Watering trucks would travel to and from the site up to six times a day during non-peak construction and up to 12 times a day during peak construction.

The project would consult Kern County prior to initiation of construction activities that may affect area traffic (e.g., equipment and supply delivery necessitating lane closures and trenching) and would implement appropriate traffic controls in accordance with the California Vehicle Code and other state and local requirements. The Applicant would implement the following standard traffic measures during construction of all projects:

- Construction traffic does not block emergency equipment routes.
- Construction activities are designed to minimize work on, and use of, local streets.
- Construction complies with San Joaquin Valley Air Pollution Control District standards for unpaved driveways, which include a requirement to keep vehicle speeds below 15 miles per hour and to have fewer than 150 trips per day per unpaved road.

Construction Safety

The project would implement measures for worker safety during construction in accordance with California Division of Occupational Safety and Health regulations and guidance and other best management practices. For example, prior to construction, the Applicant would train construction workers in emergency procedures, fire prevention, and location and proper use of emergency equipment. The training identifies:

- Contact numbers for various local emergency response agencies, including fire, police, and medical services.
- Communication procedures to report potential health hazards and concerns.
- Procedures to reduce the potential for igniting combustible materials by preventing electrical hazards, reducing the use of flammable materials, and reducing smoking on-site during construction and maintenance procedures. project personnel would be directed to park away from

dry vegetation; to equip vehicles with fire extinguishers; and to park heavy equipment over mineral soil, asphalt, or concrete at the end of each workday. Workers would also be directed not to smoke except in designated areas.

- How to use and maintain fire extinguishers, shovels, and water to extinguish small fires.

In addition, the project would adhere to any Kern County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e., fire engines) and would make fire suppression equipment (i.e., fire extinguishers) available at all times. As a standard feature of all of the Applicant's projects, heavy equipment would also be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.

Electricity

The temporary office and construction facilities would obtain construction electricity from a temporary drop offline from the local electrical distribution system. Up to ten portable electrical generators that meet local and state emission controls would be used throughout the proposed Facility during construction and operation for electrical needs away from the temporary construction facilities.

Water

The proposed project would obtain water for construction from either existing wells or purchase water from a local provider. The water would be trucked and stored on-site to be primarily used for dust suppression, soil compaction, concrete hydration and other miscellaneous activities requiring non-potable water during construction. The Applicant has identified the need for less than approximately 75 acre-feet of water during construction, primarily for dust-suppression, soil compaction, concrete hydration purposes, etc. Potable water for drinking and similar needs during construction would be trucked in from off-site (e.g., bottled water).

Site Preparation and Grading Activities

The proposed Facility is flat, nearly level, and would require only minimal grading to allow for installation of the PV panels. Minimal grading is expected for the combined area for the inverter pad, substation, driveways, tracker installation, and other improvements. Access driveways are constructed by placing two to four inches of decomposed granite or comparable material directly on the existing soil. Soil compaction, soil strengthening agents, or geo fabric may be used for access driveways. Compaction may also be required for the construction of inverter pads, substation, control rooms, and driveways.

Dust Control

The project would implement standard fugitive dust control measures and incorporate those measures into their construction contracts for all projects. The dust control measures include:

- Watering active construction sites with the frequency of watering based on the type of operation, soil, and wind exposure.
- Stabilizing dust emissions at disturbed areas, including storage piles that are not actively utilized for construction purposes, using water or other approved substances.
- Prohibiting grading activities during periods of high wind (over 20 miles per hour).

- Limiting vehicle speed on-site to minimizes dust emissions on unpaved driveways (15 miles per hour).
- Covering trucks hauling dirt, sand, or loose materials.
- Posting a publicly visible sign with the telephone number and person to contact regarding dust complaints. The contact would respond and take corrective actions within 48 hours. The phone number of the San Joaquin Valley Air Pollution Control District must also be visible to ensure compliance with rules regarding nuisance and fugitive dust emissions.

Diesel-Powered Equipment

In addition to standard dust control features, the Applicant would implement standard measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contracts for the proposed Facility.

Storm Water Protection

Because construction of the proposed Facility would disturb greater than one acre of surface area, the proposed project is required to obtain coverage under the State Water Resources Control Board (State Board) Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (2012-0006-DWQ). As a standard requirement for enrolling under this permit, the project 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 would be based on final engineering design and would include project components. The proposed project would submit a Notice of Intent to the State Board to initiate coverage under the Construction General Permit.

Solid Waste

A contract would be executed with a local waste hauling company to ensure removal of landfill material from the site. Efforts would be made to reduce landfill waste by developing an effective waste recycling program. Waste containers would be spread over work areas making it easy for workers to utilize. Workers would make regular sweeps to ensure the worksite is clean and safe.

Commissioning and Energizing

Before solar field components can be commissioned and tested, they must have back-feed power from the high voltage system. Final construction phasing would be determined during project financing but, for the purposes of this CEQA analysis, it is assumed that all construction phases may occur simultaneously.

Project Operation and Maintenance Activities

Once the proposed project is constructed, maintenance would generally be limited to the following:

- Cleaning of PV panels
- Monitoring electricity generation
- Providing site security

- Facility maintenance – replacing or repairing inverters, wiring, and PV modules

Schedule and Workforce

During the operational phase, the project would employ up to two (2) full-time equivalent (FTE) personnel (or personnel hours totaling 2 FTE positions (i.e., an average of 200 personnel hours per week) who would commute to the site. Additional operational staff of up to two (2) full-time employees could be there at any time when urgent repairs or maintenance are required.

The facility would operate seven days a week, 24 hours a day, generating electricity during normal daylight hours when the solar energy is available. Maintenance activities may occur seven days a week, 24 hours a day to ensure PV panel output when solar energy is available.

Operational Water Usage

Water demand for panel washing and O&M domestic use (sinks, lavatories, landscape irrigation, drinking) is not expected to exceed .3 acre-feet per year. Water is anticipated to be obtained from on-site wells or delivered via truck from an off-site source(s) within the project vicinity. If water is trucked into the site, it is anticipated that an available local water source would be selected to minimize truck trips/lengths in transporting water to/from the site.

Electrical Supply

Power for plant auxiliaries would be provided by the project's electrical generation or supplied by the local power provider. The proposed project would require power for the O&M facilities, electrical enclosures, tracker motors, associated structures, and for lighting and security.

The proposed Facility is anticipated to be operational and productive over a period of 35 years. The proposed Facility would operate seven days a week, with daily monitoring and maintenance activities, both planned and unplanned, taking place during daytime and nighttime hours. Personnel would largely work in the O&M building monitoring the system's performance and performing system production forecasting. Personnel would access equipment within the proposed Facility for operational adjustments or minor repairs. Regular access throughout the proposed Facility throughout the day and night is expected, as is foot traffic on and off of roads. Personnel would use light to medium duty trucks and all-terrain vehicles for traversing the site along fire access roads, including drainage crossings. Security monitoring would occur on-site 24 hours a day.

Planned and unplanned maintenance would occur every day and as needed during daytime and nighttime hours, throughout the lifetime of the Project. Planned maintenance activities within the proposed Facility would include routine inspection, repair, restoration, replacement or repair, washing solar panels, security surveys and actions, and modification work on project equipment and facilities. Unplanned maintenance activities could also become necessary due to unexpected damage to or failure of equipment or facilities.

Forced outage situations, where the proposed Facility has unexpectedly stopped normal operations, could occur during the O&M period requiring immediate action. Forced outages are characterized by an unexpected failure of project equipment or facilities, which requires immediate inspection, repair, restoration, replacement and/or modification. Forced outage conditions are characterized as more urgent or emergency-type work where potential for harm to persons, property or the environment exists and requires expedited action to remedy the situation to avoid such risks.

During operations of the Project, inspections, testing, maintenance, and repairs would be performed on a continual basis, with most activities occurring once or twice per year for each tracker or major piece of equipment. Specific activities for inspection and preventive maintenance include the following:

- System testing to ensure peak performance.
- Inspecting array mechanical components, PV mounting systems, and PV modules.
- Inspecting AC and DC electrical components, including conductors, conduit, connectors, fused and unfused disconnects, and switchgear.
- Inspecting battery components.
- Inspecting tracker control enclosures and components.
- Inspecting inverters and cleaning of fans and enclosures.
- Lubrication of worm gear annually.
- Testing DC array circuits.
- Inspecting electrical terminations and mechanical connections for proper torque throughout system.
- Meter reading.

Routine system maintenance includes tightening of loose electrical connections and, tightening ground connections, replacement of defective modules found during testing, other minor maintenance and repair work.

Corrective maintenance that would periodically occur during operation include:

- Replacement of broken or non-functioning PV panels.
- Tracker troubleshooting and repair.
- DC and AC circuit troubleshooting and repair, including fault situations.
- Monitoring equipment and sensor troubleshooting and repair.
- Major system repairs.
- System troubleshooting and repair in the field and in the O&M building.
- Warranty repairs, retrofits, or replacements.

Maintenance or repair would occur on an as needed basis when deterioration of parts or damage occurs or retrofitting becomes necessary. Access and fire roads, including drainage crossings, would rarely require maintenance or repair but could require re-grading, leveling, filling, or culvert repair. Supporting facilities and structures such as the water supply and treatment facilities (wells, tank, septic tank and leach field), O&M building, security system, fencing (around the array area and project Substation), and parking areas could require corrective maintenance or repair. The electrical transmission facilities including the project Substation, medium voltage overhead lines, and gen-tie may also need corrective repair or corrective maintenance. Other O&M activities include erosion control maintenance, restoration of vegetative cover,

vegetation maintenance (e.g. mowing, grazing, and weed control such as herbicide spraying or mechanical removal).

Fire Suppression and Safety

Combustible vegetation or agricultural products on and around the proposed Facility would be actively managed by the project owner during both the construction and operation phases to minimize fire risk. Combustible products would be either limited in height or removed primarily through a combination of dirt or gravel firebreaks, grazing, and mowing. A Vegetation Management Plan would be implemented during operations to guide the use of tools such as grazing and mowing to help manage accumulation of potential fine fuels around project infrastructure. The proposed Facility would also include fire breaks around the site boundary in the form of compacted dirt or gravel breaks and access driveways subject to Kern County standards.

Land Management

Currently, the proposed Facility design is comprised of approximately 511.47 acres of agricultural land that are tilled for crop production. Due to the disturbed nature of the site, wildlife diversity and abundance within the study area are generally low.

Agricultural Operations

Agricultural operations would continue within a portion of the property that is outside of the Facility fence line. In recent years, the parcels have been used primarily for grazing and farming dry grain crops such as wheat or barley. These lands would continue to be actively farmed with cultivated crops that may include, but are not limited to, winter wheat, barley, cantaloupe, watermelon, beans, orchards, and other row crops. During active farming, weeds would be managed following established agricultural practices.

Project Features and Best Management Practices

The following sections describe standard project features and best management practices that would be applied during construction and long-term operation of the project to maintain safety and minimize or avoid environmental impacts.

Hazardous Waste and Hazardous Materials Management

The proposed project would have minimal levels of materials on-site that have been defined as hazardous under 40 CFR, Part 261. Materials such as the following would be used during the construction, operation, and long-term maintenance of the proposed project:

- Diesel fuel, gasoline and motor oil– used for electrical equipment
- Mineral oil - to be sealed within the transformers
- Various solvents/detergents – equipment cleaning
- Lead acid-based and/or lithium ion batteries – used for emergency backup

Hazardous materials and wastes will be managed, used, handled, stored, and transported in accordance with applicable local and State regulations. All hazardous wastes will be maintained at quantities below the threshold requiring a Hazardous Material Management Program (HMMP) (one 55-gallon drum). Though

not expected, should any on-site storage of hazardous materials exceed one 55-gallon drum, an HMMP would be prepared and implemented.

Chemical storage tanks (if any) would be designed and installed to meet applicable local and state regulations. Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers would be stored (in an approved storage facility/shed/structure) and disposed of as required by local and state regulations. Material quantities of hazardous wastes are not proposed or anticipated to be used.

Non-Hazardous Wastes/Inert Solids

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. A Construction Waste Management Plan will be prepared for review by the County. Consistent with local regulations and the California Green Building Code, the Plan would provide for diversion of a minimum of 50 percent of construction waste from landfills.

Spill Prevention and Containment

Spill prevention and containment for construction and operation of the proposed project will adhere to the Environmental Protection Agency's (EPA) guidance on Spill Prevention Control and Countermeasures (SPCC).

Wastewater/Septic System

A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized according the number of employees.

Health and Safety

The proposed project would adhere to all Kern County Improvement Standards to ensure accessibility for emergency vehicles and safe operation during construction on project operation. The proposed project would implement measures for worker safety during construction in accordance with California Division of Occupational Safety and Health (CalOSHA) regulations and guidance and other best management practices. The proposed project will have an Emergency Response Plan (ERP). The ERP will address potential emergencies including chemical releases, fires, and injuries. All employees will be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency.

To help ensure safety procedures are following, the proposed project would include safety training for construction workers and operational personnel. This would include both classroom and hands-on training in operating and maintenance procedures, general safety items, and the planned maintenance program. Training would include emergency procedures, fire prevention, and discussion of the location and proper use of emergency equipment. In addition, contact numbers for various local emergency response agencies, including fire, police, and medical services would be provided, and instruction for communication procedures to report potential health hazards and concerns would be a part of the training.

The proposed project also would include training on procedures to preventing electrical hazards that would reduce the potential for igniting combustible materials. The project also would limit areas where employee can smoke and parking areas for both personal, heavy equipment, and for project operations would be provided over mineral soil, asphalt, or concrete and at a safe distance from dry vegetation. In addition, heavy equipment also would also be equipped with other mechanisms such spark arresters or turbo-charging (which eliminates sparks in exhaust). Lastly, all project vehicles would be equipped with fire extinguishers, and training on their maintenance and how to extinguish small fires would be provided

As discussed above, these safety precautions and emergency systems would be implemented as part of, design, construction, operation, and maintenance of the proposed project to ensure safe and reliable operation.

The Lakeview Substation and PG&E Upgrades

Overview

In order to accommodate interconnection of the proposed solar photovoltaic electrical generating Facility (solar Facility) to the California electrical grid, the project is anticipated to modify the existing Lakeview Substation in unincorporated Kern County, California, to accommodate a new 70 kV bus terminal. The new bus terminal will connect the proposed customer-owned photovoltaic solar project to the existing transmission system via new generation tie-line. Further description of the network upgrades is provided in the sections below.

Scope

The proposed project is located in unincorporated Kern County, approximately 15 miles east of the community of Maricopa, approximately 4 miles west of Interstate 5, and approximately 2.5 miles north of State Route 166. The existing Lakeview Substation occupies an approximately 1.5-acre parcel located at the corner of Copus Road and Schallock Road. The expansion would cover approximately .50-acres of land immediately adjacent to the west corner of the existing substation. The surrounding area is predominantly characterized by rural uses such as agriculture and open space.

Project Facilities

PG&E proposes to modify the existing Lakeview Substation. New substation equipment will be constructed adjacent to the existing equipment by extending an existing 70 kV single breaker double bus configuration with three (3) new bay structures, including one for the customer-owned photovoltaic solar project generation tie-line. The additional bay structure will be used as a spare for future equipment. A general arrangement of the existing and future substation is show *Figure 11, Lakeview Substation General Arrangement*. A profile view of the modified substation area is show *on Figure 12, Lakeview Substation Profile View*. Limited construction of new power line structures and removal of existing structures will be necessary to optimize the power line routing into the modified substation area, taking into consideration land availability and site access to the pole locations.

Modified Lakeview Substation Facilities

Moderate site grading and fill will be required to accommodate the substation facilities and temporary construction work area. PG&E will install new electric equipment at the substation, including new circuit breakers, bus structures, 70 kV disconnect switches, transformers, protective relaying, metering and control equipment, telemetering equipment, an electric grounding system, and underground conduits or trench

systems. The modified substation area will be unmanned, with automated features and remote-control capabilities. The general arrangement of the modified substation area is provided in *Figure 11*, and a corresponding substation profile view is provided in *Figure 12*. For security, PG&E will install an approximately 9.5-foot-tall fence consisting of an 8-foot-tall chain-link fence fabric, topped with 1-foot "V" shaped topper with 6 rows of bar-wire and 1.5-foot diameter razor wire that will enclose the modified portion of the substation area.

Power Line Reconfiguration

Existing power poles and conductors located outside the substation may be required to be reconfigured in order for the proposed customer-owned photovoltaic solar project to connect to the new substation equipment. This will be achieved by installing new structures, or by replacing existing structures with new structures, to accommodate the customer-generation tie-line and new line angles resulting from the new arrangements, taking into consideration land availability and site access to the power line support locations.

In order to accommodate the customer-owned generation tie-line interconnection, Pacific Gas & Electric (PG&E) will extend an approximately 150-feet 70 kV power line from the Lakeview Substation dead-end structure to a new customer-owned TSP located immediately north of the substation fence line. An additional pole approximately 80-95 foot tall TSP will be added to support the line between the customer owned TSP and Lakeview Substation. Typical design of the structures are provided in *Figure 13, Typical Tubular Steel Design.*

Access and Construction Work Area

Parking, lay down, and staging for construction materials and equipment at the substation site will temporarily occupy the northern portion of the graded pad. Work areas around the poles will require approximately a 50-foot radius. The modified substation area will result in approximately .50-acres of permanent disturbance. Temporary work areas outside the modified substation will total approximately 2-acres of temporary disturbance. During construction, access to the modified substation area will be obtained from Copus Road. Minor access road improvements will be required in order to transport heavy equipment.

Modified Substation Construction

Surveyors will stake the access road alignment, establish grading limits, and set grade stakes for the modified substation pad. Prior to the start of construction, SWPPP BMPs will be installed. Site preparation will begin with vegetation clearing, including grasses and other organic material.

This vegetation material will be stockpiled within the footprint of the modified substation area and eventually removed from the site. Topsoil will be stripped, stockpiled, and reused for agriculture or site restoration. Rough grading will begin, approximately balancing the cut and fill on the level site. The rough grade will provide site drainage to the newly constructed stormwater retention basin. Engineered fill (gravel) will be spread on the pad surface to create a stable work area for subsequent construction activities. While the engineering design will attempt to balance the cut and fill, some existing soil may not be suitable for the proposed use. To the extent possible, all cut materials will be reused as fill following suitability testing.

Representative samples of excess soil will be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material will be imported as needed to accomplish the necessary compaction and final grade.

Rough grading will be followed by installing a security fence, excavating and installing the subsurface ground grid, conduit chases, and forming and pouring concrete footings and foundations for all the aboveground structures. After the concrete has cured, PG&E will install the aboveground steel structures, circuit breakers, busses, dead ends, and other electrical equipment, including associated control system hardware.

Equipment to be placed on foundation slabs or footings will either be bolted or welded securely to meet the appropriate seismic requirements. All metallic structures within the substation will be connected to the station grounding grid. A final dressing of aggregate will be spread on all unpaved areas in the modified substation area to provide an all-weather stable surface for O&M activities while limiting the amount of impervious surface created to minimize site run-off. Areas where equipment access is needed for maintenance will be stabilized using compacted aggregate base.

Power Line Reconfiguration/Interconnection Construction

Once the foundation locations have been surveyed and staked, power line construction will be divided into four phases: (1) Installing TSP foundation, including construction of access to each new TSP location as necessary; (2) Installing TSPs; (3) Stringing power line relocations, which may require shoo-fly poles and temporary work areas to cut-over lines and construct pull sites; (4) Removing poles and conductors, access roads, and pull sites, and restoring surfaces as necessary.

Installing New Poles

Installing new TSPs will require boring a single foundation hole approximately 4.5 to 7 feet in diameter and 15 to 30 feet deep depending on the soil conditions. Workers will place reinforcing steel in the hole and secure the steel to a bolt assembly plate. Concrete forms that extend 1 to 2 feet above natural ground level will be installed and concrete will be poured around the reinforcing steel up to the level of the bolt assembly plate. The TSPs typically consist of two or three sections, depending on the length or diameter of the pole. The pole base will be lifted by a crane onto the foundation and bolted in place. The crane then will lift the remaining sections and lower them into place. The top section is fitted with arms and insulators prior to being lifted into place.

Erosion and Sediment Control and Pollution Prevention

PG&E will implement a SWPPP during construction to prevent pollution of nearby drainages with sediment or other polluted runoff related to project construction. The plan will outline BMPs that will include placing erosion and sediment controls such as fiber rolls, silt fence, mulch, and seed as appropriate during project construction. BMPs will be installed prior to preconstruction vegetation clearing, as appropriate.

Cleanup

Cleanup operations involve final grading to original contours and cleaning up all disturbed areas, including temporary workspaces and the ancillary access roads to the pole reconfiguration work areas and the temporary access road to the modified substation area. Poles and conductors removed from the Project will be dismantled and taken to appropriate disposal facilities to be reused, recycled, or disposed of properly. PG&E will conduct a final survey to ensure that cleanup activities have been successfully completed.

Construction Schedule

While substation modification and power line construction will require approximately 16 months of construction activity, there will be gaps in the schedule due to equipment delivery logistics, power load

considerations, and other factors. The expectation is for the proposed Facility to be placed in service by end of 2023, with final close out items completing in 2024.

The improvements to the Lakeview Substation would be constructed by PG&E while the Project would construct the gen-tie. Both the gen-tie and Lakeview Substation are under the regulating authority of the CPUC. CPUC General Order No. 131-D preempts local authorities from regulating electric power line and substation projects. PG&E would consult with Kern County to avoid and/or resolve conflicts with existing land uses. Potential environmental impacts associated with PG&E supporting facilities are addressed in this CEQA analysis, as these are critical project components.

Decommissioning

With the removal of proposed Facility infrastructure, the site would revert to undeveloped land that supports agricultural production and wildlife habitat. The decommissioning and restoration process involves removing aboveground and belowground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control BMPs would be used during the proposed Facility's decommissioning phase.

Solar panels would be removed and placed in secure transport crates or container boxes for storage, and transported to another Facility for reuse, material recycling, or disposal. The bolts and reusable fasteners that had attached each module to the racks would be removed and saved for reuse. Once the solar modules were removed, the racks would be disassembled and the structures supporting the racks would be removed and salvaged or recycled. Electrical equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite. Electrical equipment, transformers, and switching gear on the inverter and interconnection transformer pads and all above ground electrical wiring would be removed and recycled or disposed. All other aboveground site infrastructure—including fences, awnings, and the concrete pads that supported the inverters, and related equipment—would be removed. The fence and gate would be removed per a fencing plan and may include the replacement of some perimeter array fencing with fencing to facilitate livestock management. Removed materials would be recycled to the greatest extent possible. All debris would be removed from the area.

1.5. Project Objectives

The project proponent had defined the following objectives for the project:

- The project would establish solar PV power-generating facilities that are of a sufficient size and configuration to produce approximately 70 megawatts (MW) of electricity and help to meet the increasing demand of the State of California for clean, renewable electrical power at a competitive cost.
- The project would generate up to 550 jobs during construction and approximately 2 permanent jobs during operation, which would provide increased business for local contractors and vendors.
- The project would minimize environmental effects by:
    - Locating generating facilities in a rural portion of northwestern Kern County which receives intense solar radiation;
    - Using existing electrical transmission facilities, rights-of-way, roads, and other existing infrastructure where practicable;

  - Minimizing water use; and
  - Reducing greenhouse gas emissions.

- The project would assist the state of California in achieving the Renewable Portfolio Standard (RPS) for 2030, by providing a new source of renewable energy (California State Assembly Bill [AB] 32, Senate Bill [SB] 1078, SB 107, SB 350, and SB 2).

1.6. Proposed Discretionary Actions/Required Approvals

The Kern County Planning and Natural Resources Department as the Lead Agency (per CEQA Guidelines Section 15052) for the proposed project has discretionary responsibility for the proposed project. To implement this project, the project proponent may need to obtain discretionary and ministerial permits/approvals including, but not limited to, the following:

Federal

- U.S. Fish and Wildlife Service (USFWS) Section 10 Incidental Take Permit and Habitat Conservation Plan (if required)
- United States Army Corps of Engineers Section 404 Permit (if required)

State

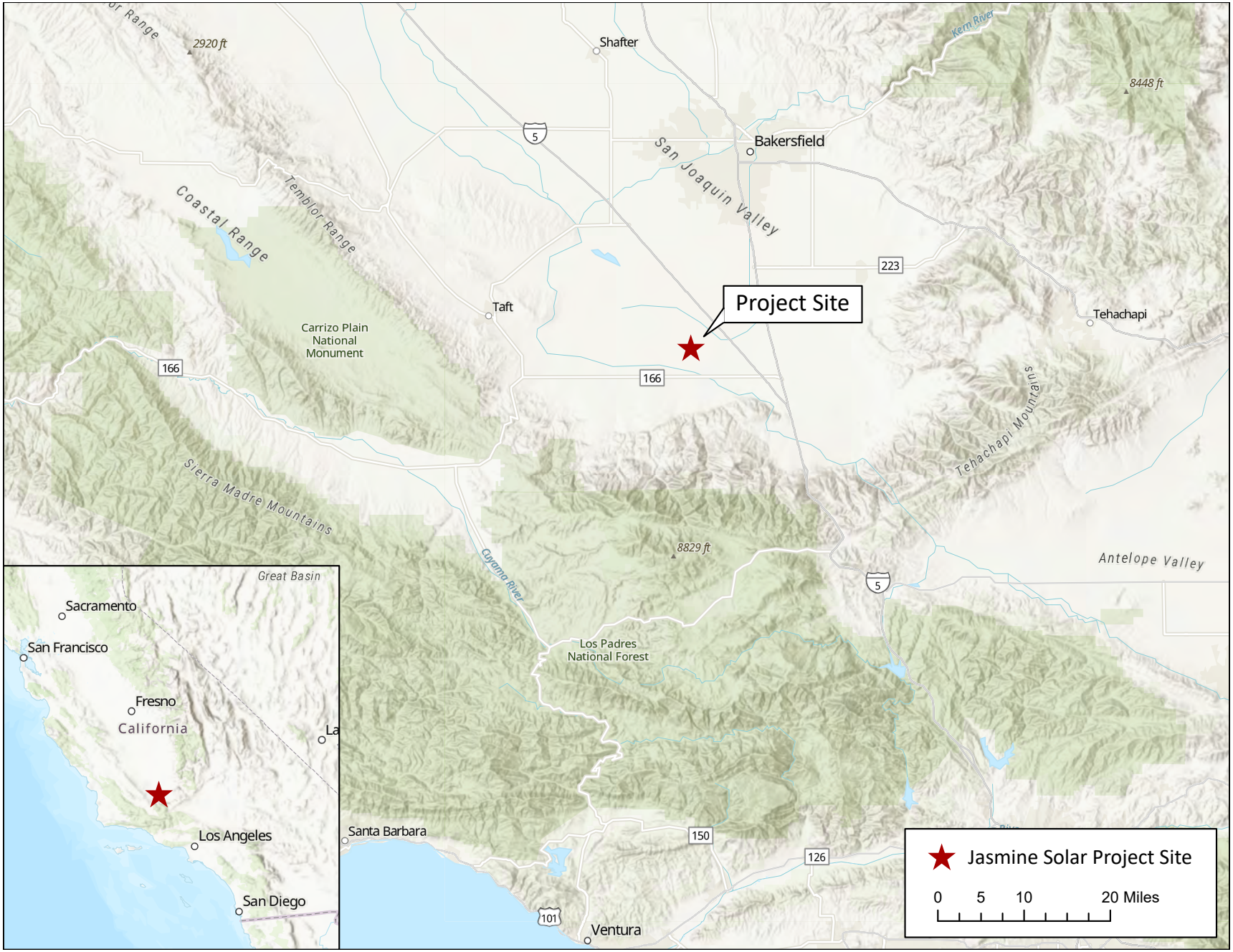
- California Public Utilities Commission (CPUC)
  - Section 851 Permit
- California Department of Fish and Wildlife (CDFW)
  - Section 1600 et seq. permits (Streambed Alteration Agreements) (if required)
  - Section 2081 Permit (State-listed endangered species) (if required)
- Central Valley Water Quality Control Board (RWQCB)
  - Waste Discharge Requirements
  - Regional Water Quality Certification (401 Permit) (if required)
  - National Pollution Discharge Elimination System (NPDES) Construction General Permit
  - General Construction Stormwater Permit (Preparation of a SWPPP)
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit (if required)
  - Permit for Transport of Oversized Loads

Local

- Kern County

  - Certification of Final Environmental Impact Report
  - Adoption of Mitigation Monitoring and Reporting Program
  - Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
  - Approval of Conditional Use Permits
  - Approval of Williamson Act Contract Cancellation
  - Approval of Kern County Grading and Building Permits
  - Approval of Kern County Access Road Design and Encroachment Permits
  - Approval of Fire Safety Plan
- San Joaquin Valley Air Pollution Control District
  - Approval of Fugitive Dust Control Plan
  - Authority to Construct (ATC)
  - Permit to Operate (PTO)

The preceding discretionary actions/approvals are potentially required and do not necessarily represent a comprehensive list of all possible discretionary permits/approvals required. Other additional permits or approvals from responsible agencies may be required for the proposed project.

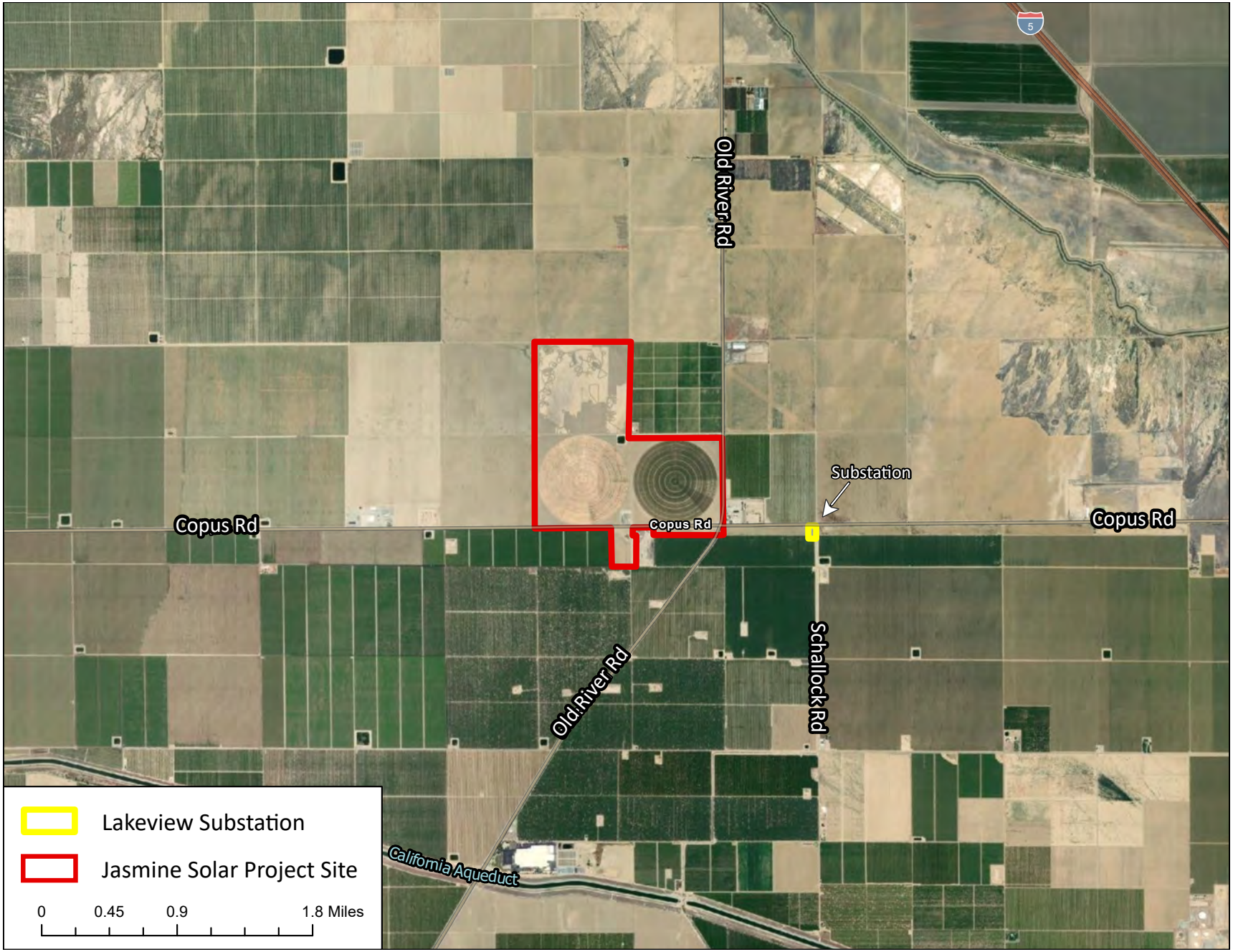


SOURCE: Esri 2022

Figure 1: Regional Vicinity Map

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale



SOURCE: Esri 2022

Figure 2: Local Vicinity Map

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

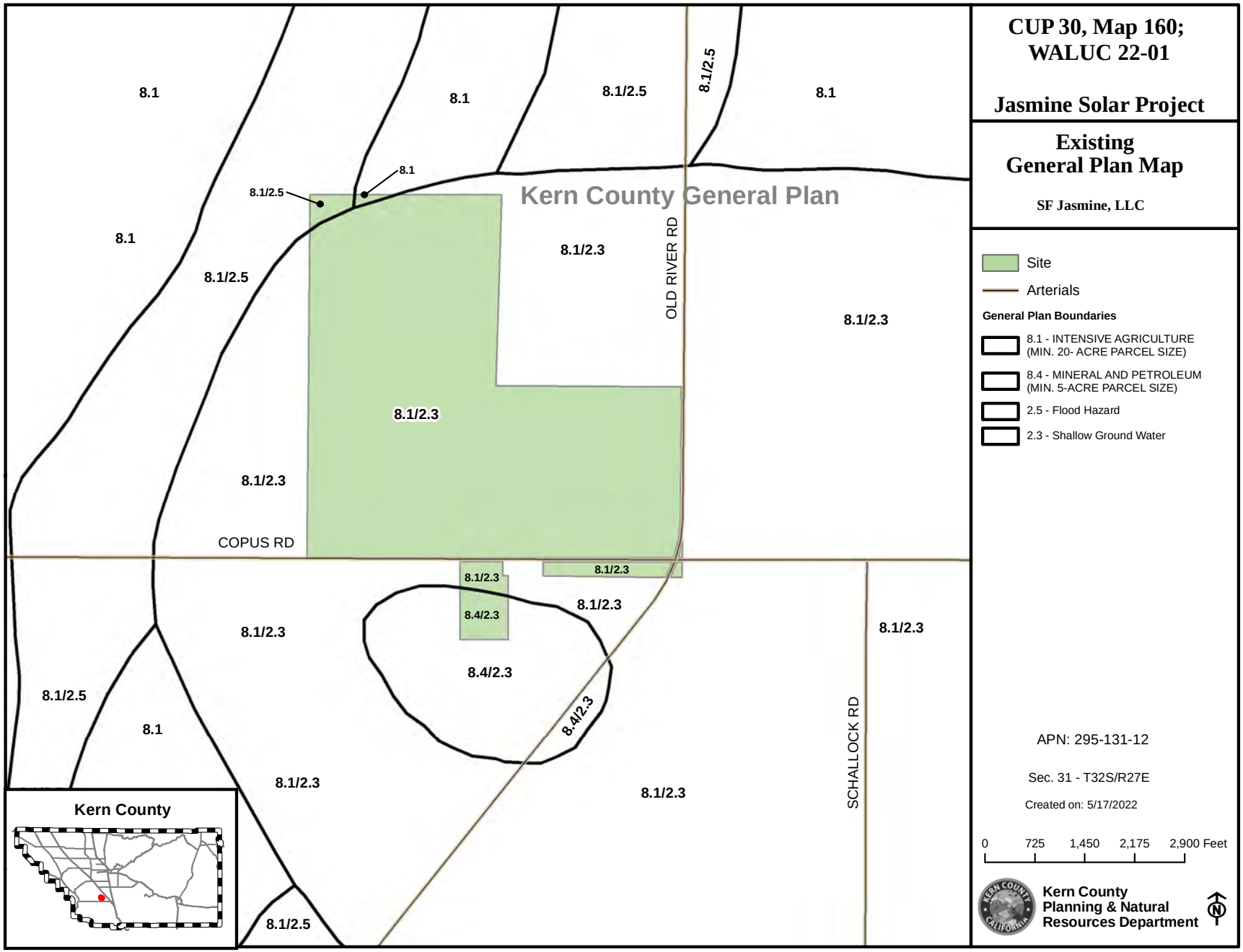


SOURCE: SF Jasmine, LLC, 2022

Figure 3: Parcelization Map

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

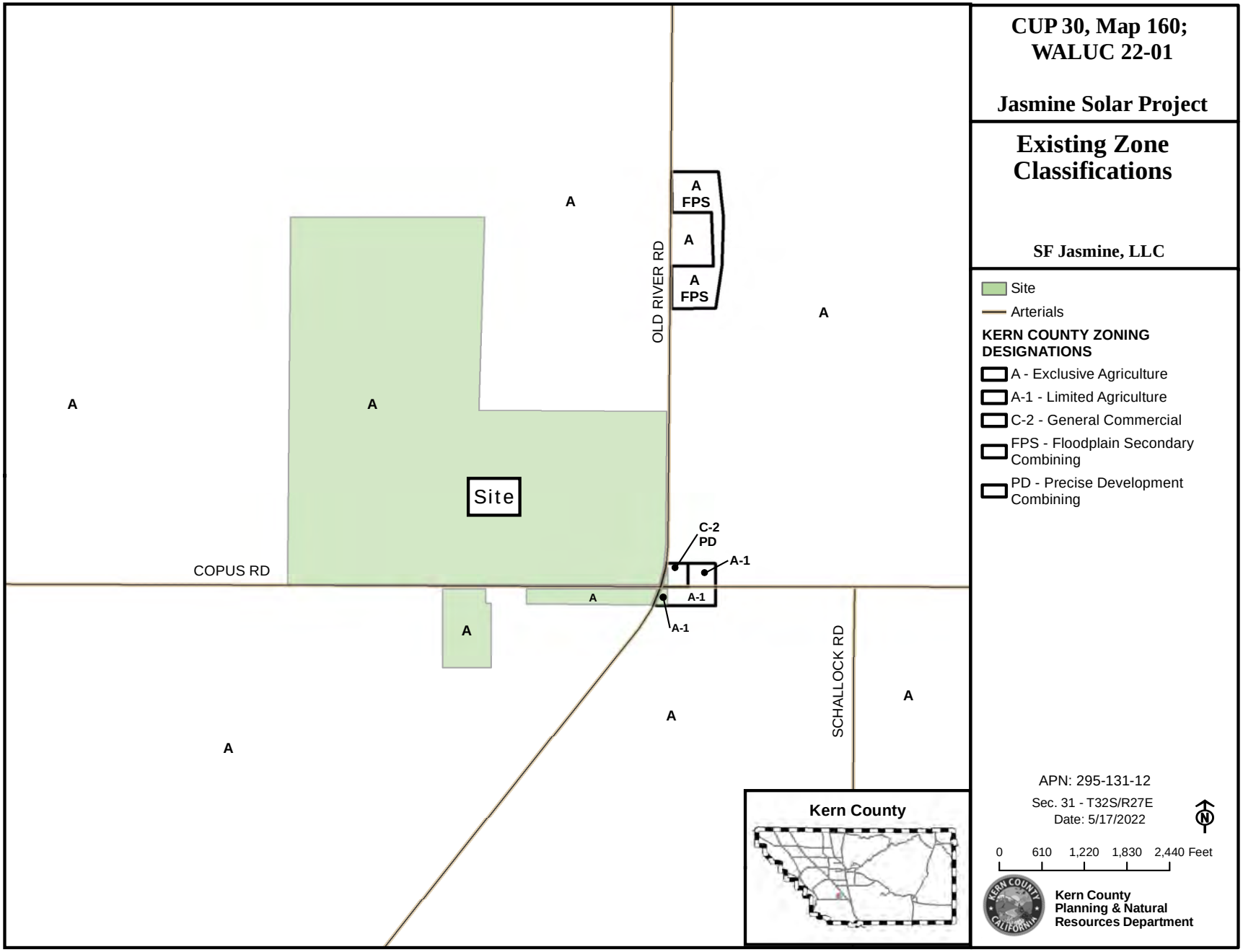


SOURCE: Kern County 2022

Figure 4: Existing General Plan Designations

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

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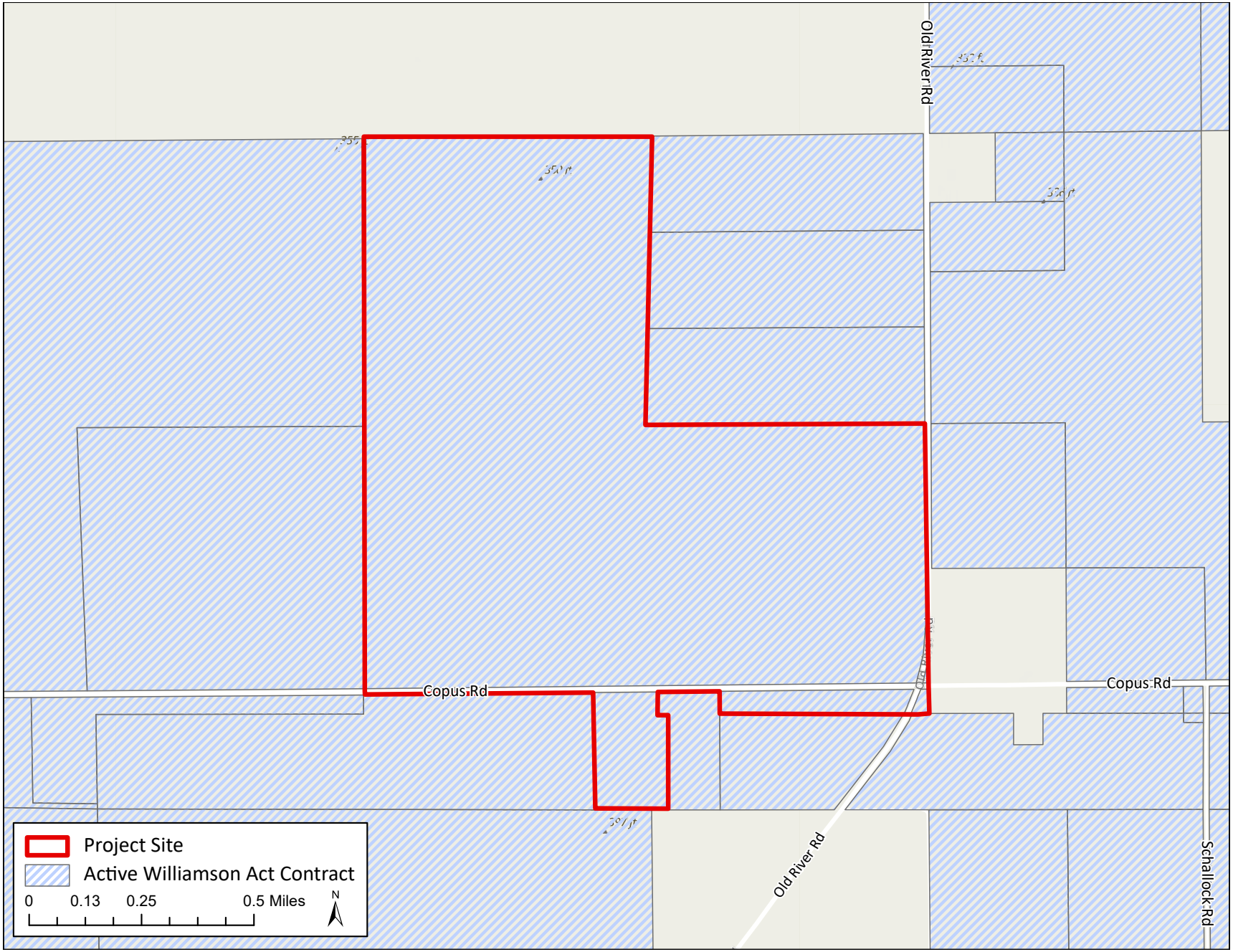


SOURCE: Kern County, 2022

Figure 5: Existing Zoning Classifications

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

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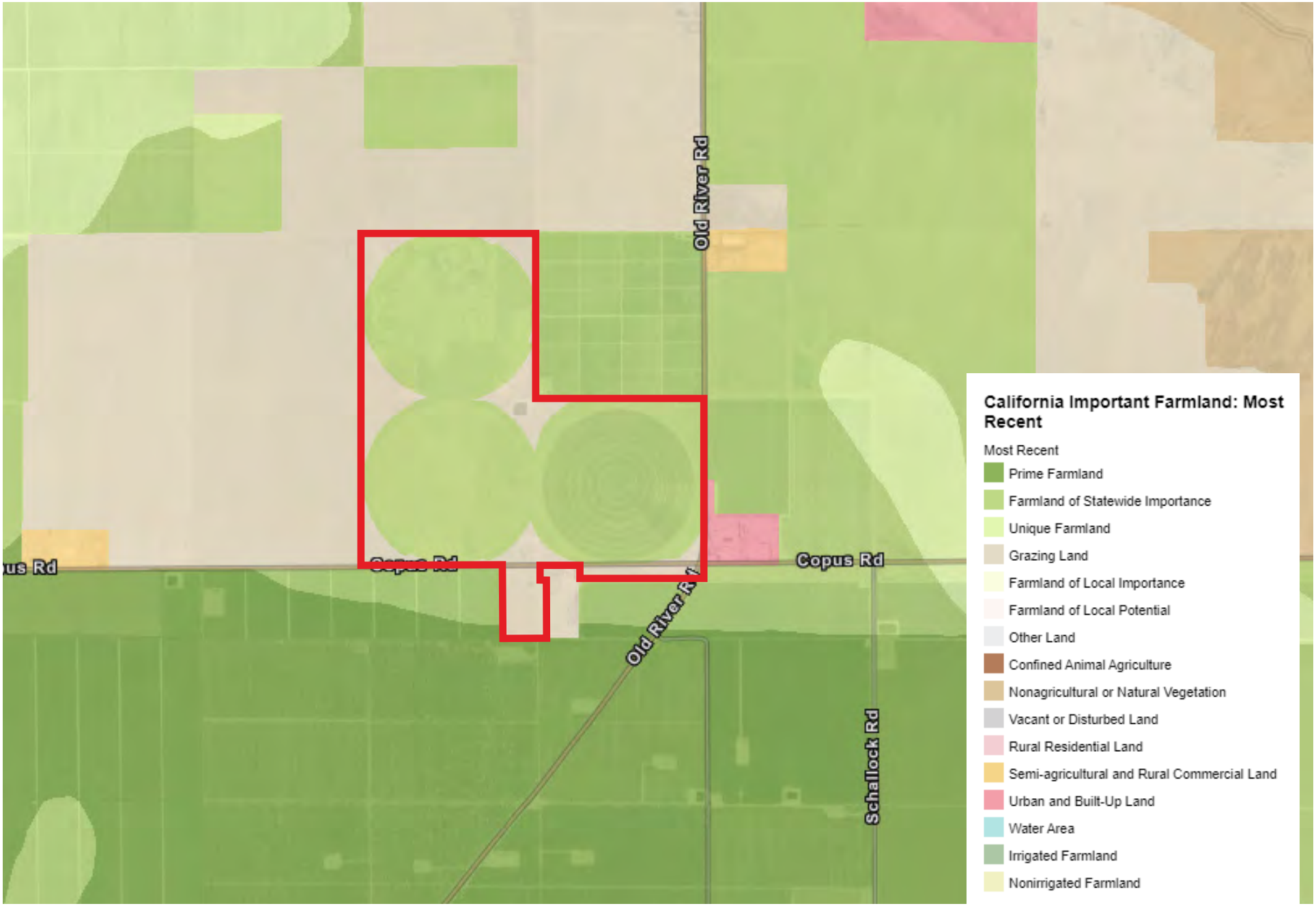


SOURCE: Kern County 2022

Figure 6: Exisitng Williamson Act Contracted Land

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

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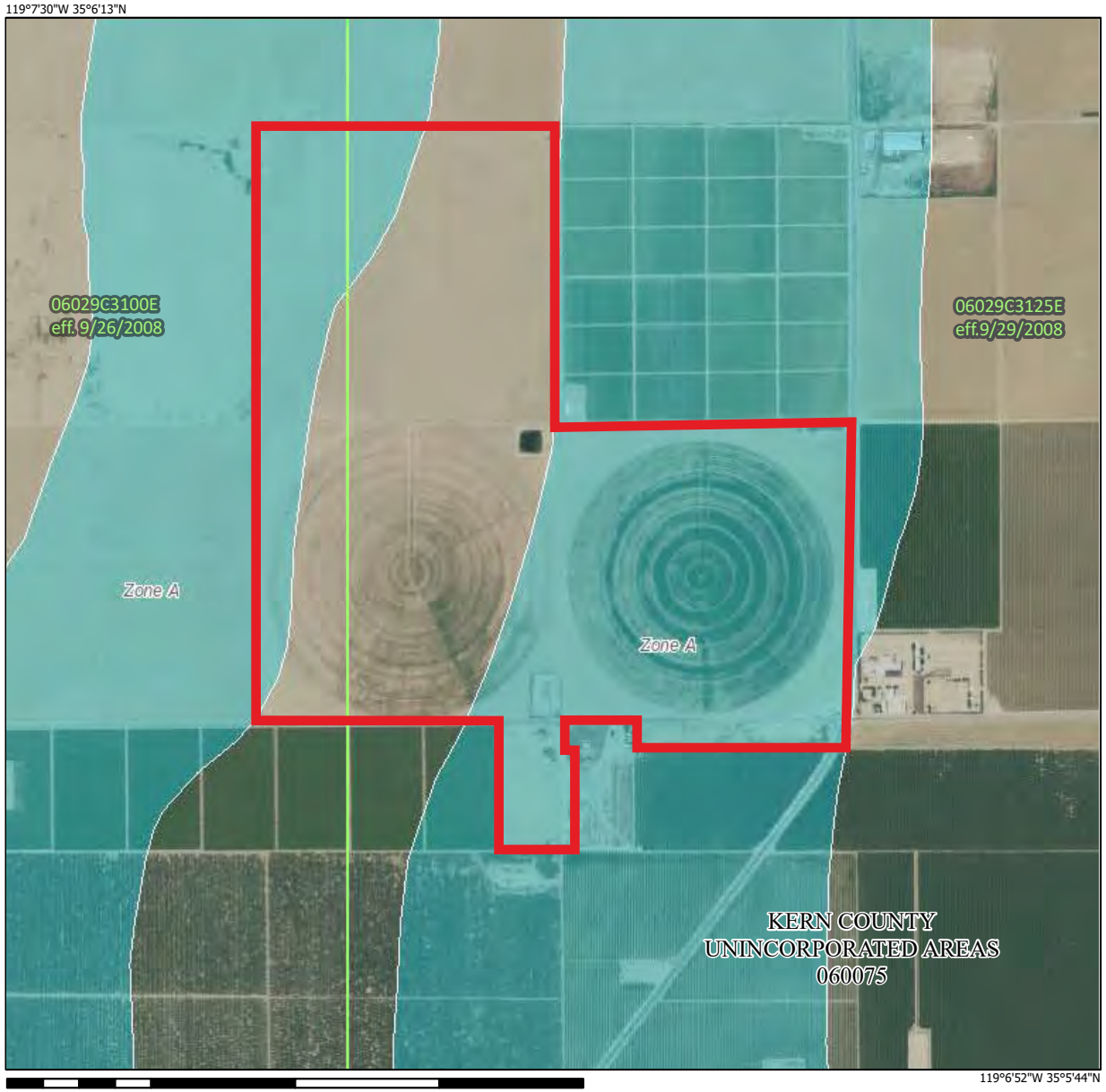
SOURCE: DOC 2018

Figure 7: California Important Farmland Map

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

National Flood Hazard Layer FIRMette



FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 Cross Sections with 1% Annual Chance
  - 17.5 Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/2/2022 at 2:59 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

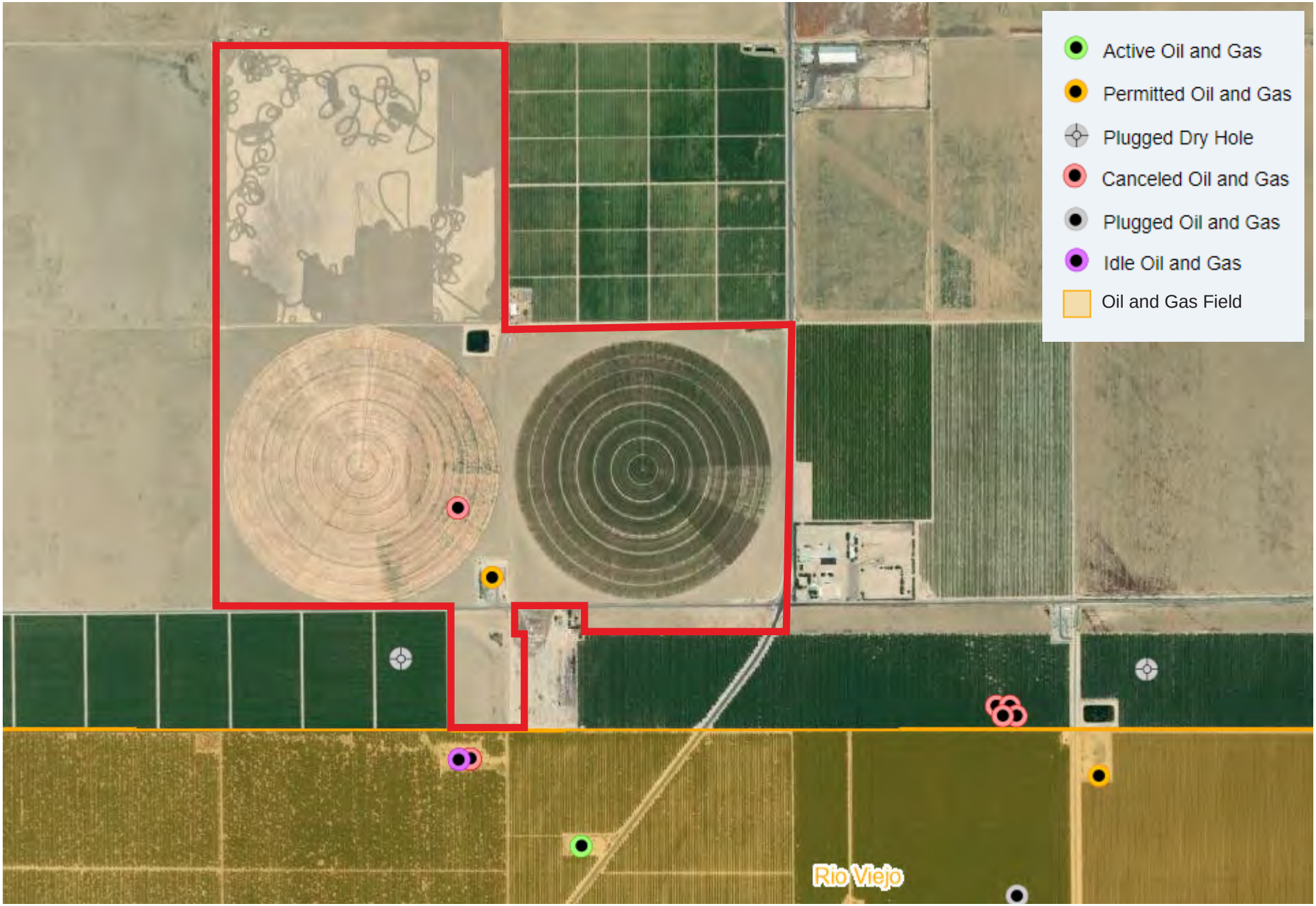
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

SOURCE: FEMA 2008

Figure 8: FEMA Floodplain Map

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

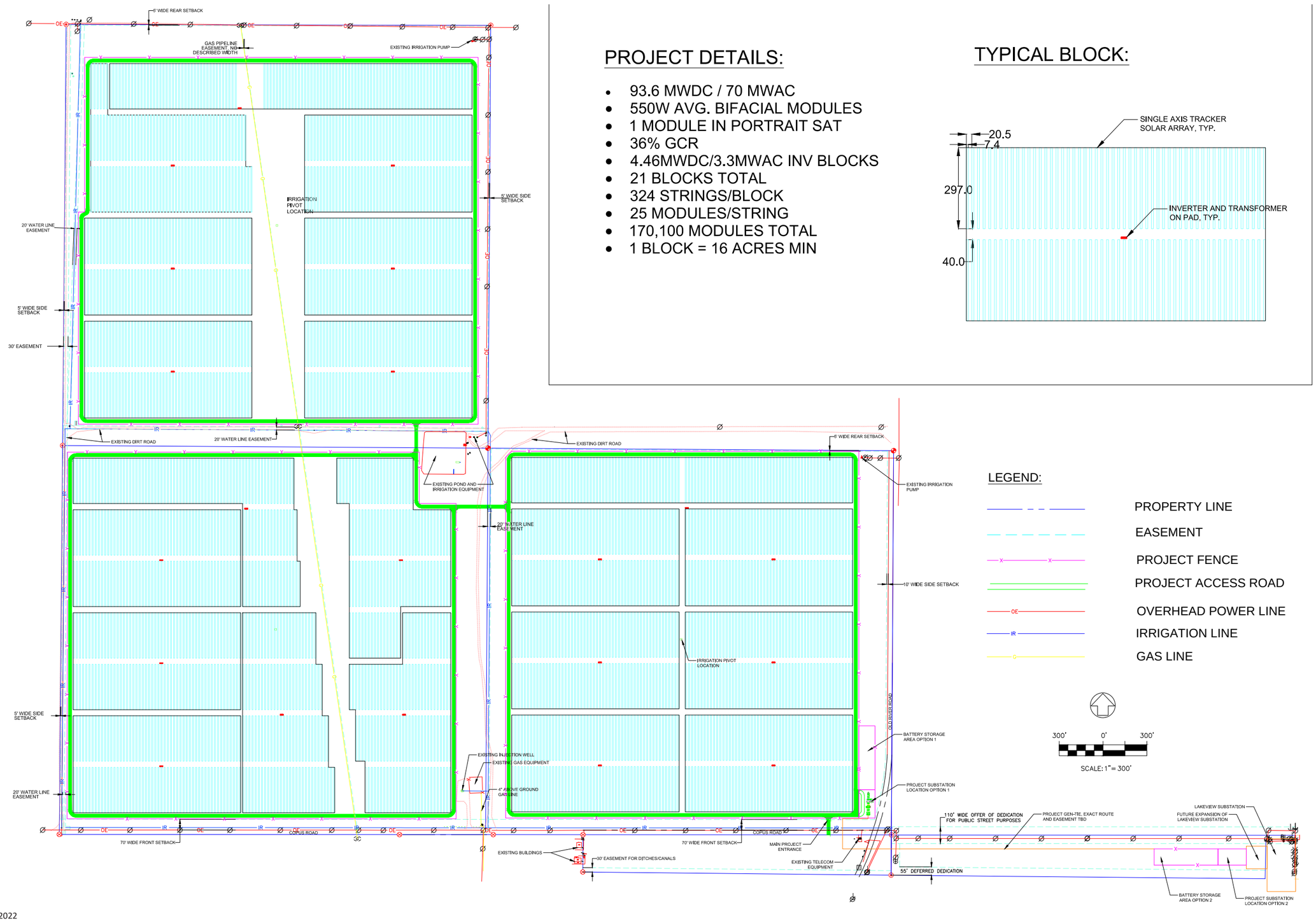


SOURCE: DOC, 2022, Esri, 2022

Figure 9: Oil and Gas Well Locations

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

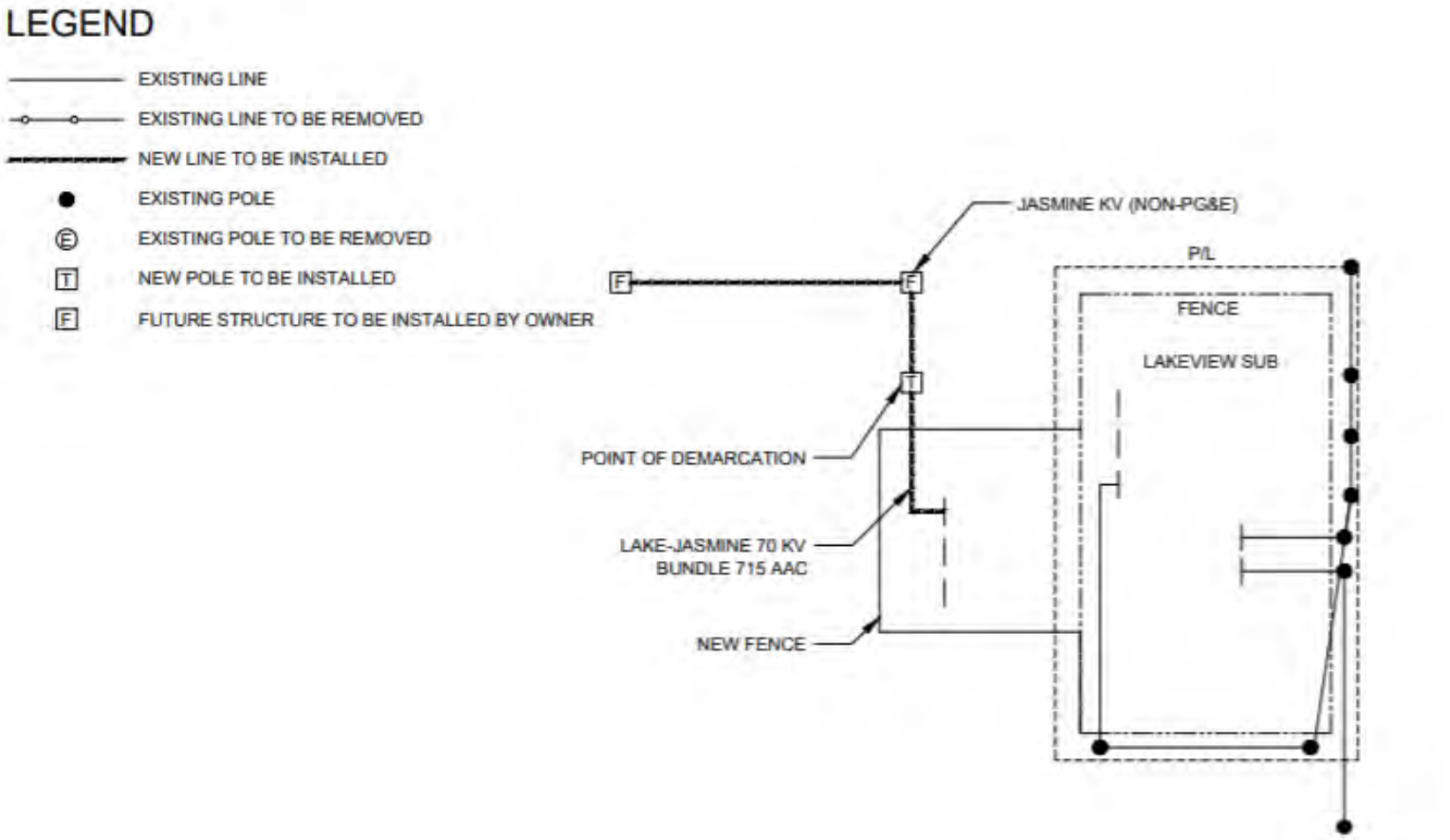
Not to scale



SOURCE: Idemitsu Renewables, 2022

Figure 10: Proposed Site Plan

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

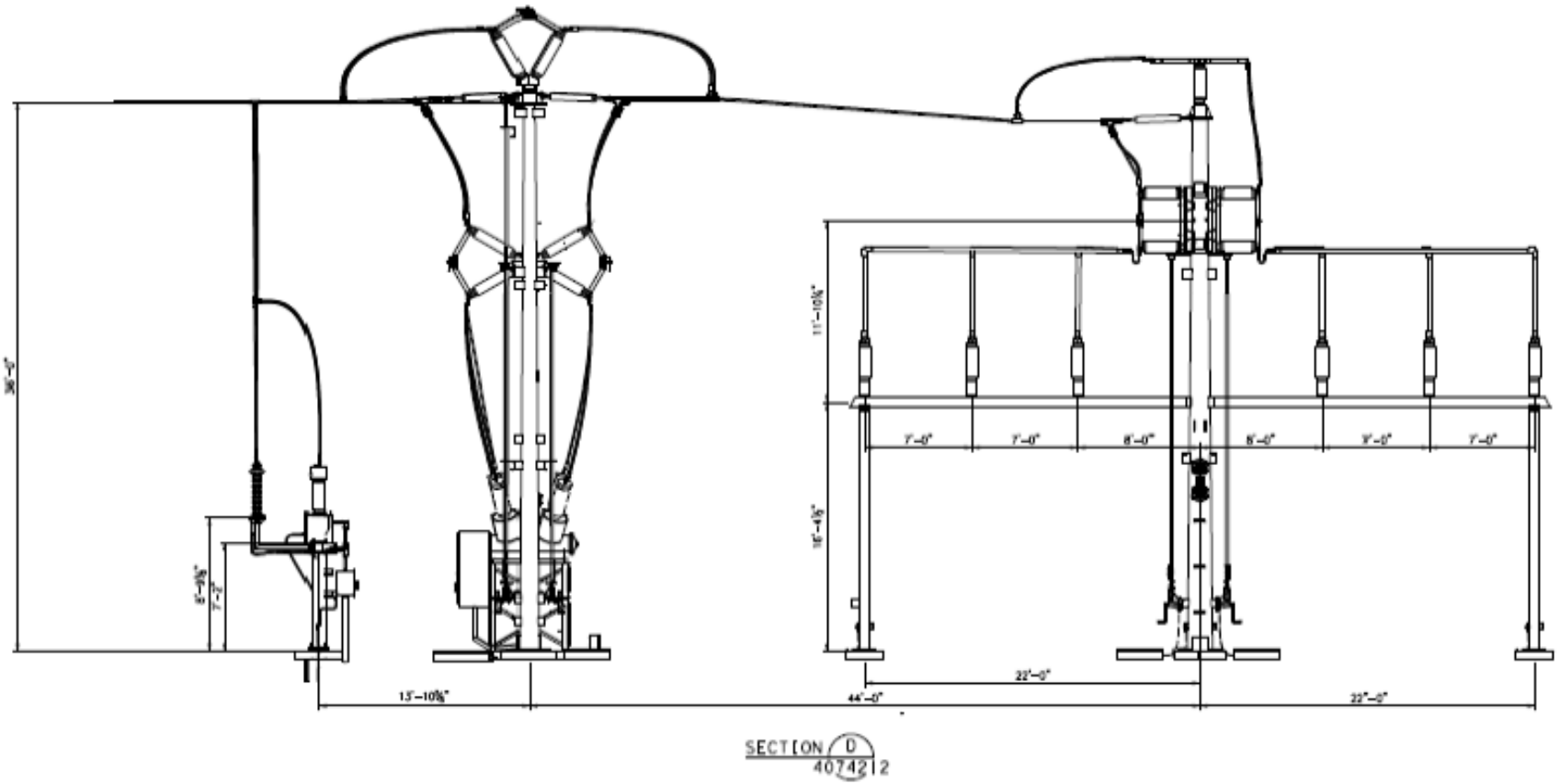


SOURCE: SF Jasmine, LLC, 2022

Figure 11: Lakeview Substation General Arrangement

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

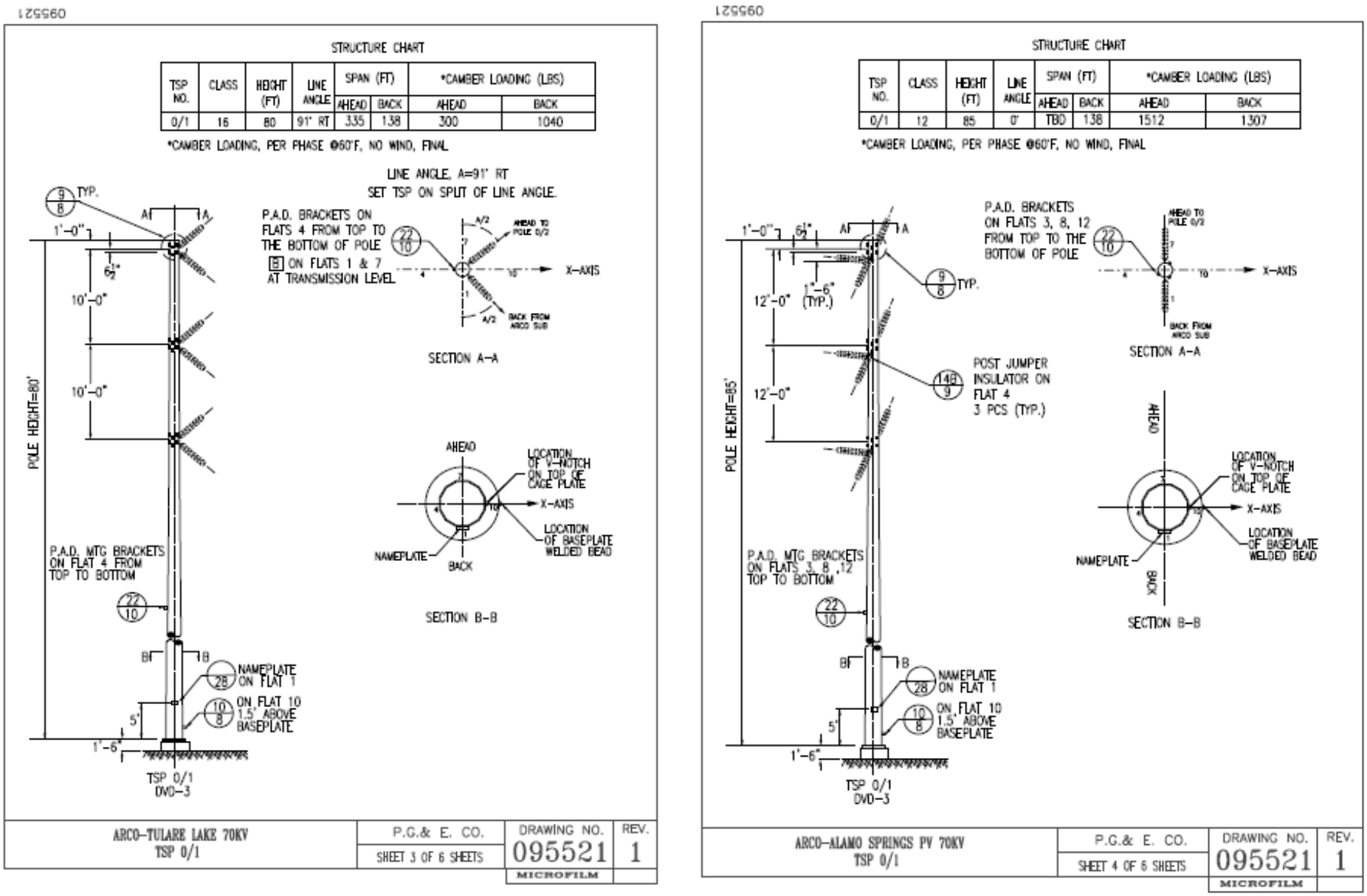


SOURCE: SF Jasmine, LLC, 2022

Figure 12: Lakeview Substation Profile View

Jasmine Solar Project
Notice of Preparation (NOP) / Initial Study (IS)

Not to scale



SOURCE: SF Jasmine, LLC, 2022

Figure 13: Typical Tubular Steel Design

Jasmine Solar Project

Notice of Preparation (NOP) / Initial Study (IS)

Not to scale

2. Kern County Environmental Checklist Form

2.1. 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 Kern County Environmental Checklist on the following pages.

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

2.2. Determination

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ 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 (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT 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: _____

Printed Name: _____ Title: _____

3. Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. Negative Declaration: "Less than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measure and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist where within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to a less than significant level.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

I. Aesthetics

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 nonurbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from public accessible vantage points) 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 that would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

RESPONSES:

(a-d) The project is located in a sparsely developed, rural area of Kern County. Land uses in the project area included a mix of undeveloped land, solar and wind energy production facilities, transmission facilities, and rural residential development. The project site is not located within an area designated for or identified as having a scenic vista or scenic views. According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible State scenic highways are where is State Route (SR) 166 meets SR 33, located near Cuyama, CA, approximately 25 miles southwest of the project site. Given the distance to the project site from both state highways, the proposed project site would not be visible or change views. Additionally, the project site is within previously disturbed agricultural fields with no trees on site, rock outcroppings, or permanent structures. Changes to the visual quality and character of the project site may be significant and impacts will, therefore, be further evaluated in the EIR.

The project site is previously disturbed agricultural land that does not generate a source of light or glare. The surrounding area contains scattered rural residential development as well as existing permitted solar and wind electrical generation facilities and transmission infrastructure. The existing residences in the project vicinity generate a minimal to moderate amount of light, primarily from building or outdoor lighting. The PV modules of the surrounding arrays and those proposed by the project are designed to absorb sunlight to maximize electrical output; therefore, they are not expected to create significant reflective surfaces or the potential for glint/glare during the day. However, further analysis of the specific lighting proposed and the potential effects of light and glare from the proposed project will be provided in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
II.	**Agriculture and Forest Resources**				
	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 nonagricultural 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?	☒	☐	☐	☐
f.	Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code)?	☒	☐	☐	☐

RESPONSES:

(a) According to the California Department of Conservation (CCDOC), California Important Farmland Finder Map, there is lands designated as Farmland of Statewide Importance and Grazing Land throughout the project site (See *Figure 7*). The portion of the project site that would be developed with the solar array and the area where the 7) KV Gen-Tie is primarily classified as Farmland of Statewide Importance. Construction and/or operation of the proposed project would result in the direct conversion of designated Farmland to a nonagricultural use. This is potentially significant and would require further analysis in the EIR.

(b) The project site and surrounding area includes land that is currently zoned as A (Exclusive Agriculture). According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use within the A zone district. The construction and operation of a solar energy generating facility on the site would require the approval of a CUP. The project site does contain lands that are subject to Williamson Act contracts. As such, there would be impacts to Williamson Act lands. This issue will be further evaluated in the EIR.

(c) No lands affected by the proposed project are zoned as forest land or timberland, or for timberland production. Therefore, the project would not conflict with existing zoning for, or cause the rezoning of, forest land, timberland, or timberland zoned for timberland production. Therefore, there would be no impact and further analysis in the EIR is not required.

(d) The project site is neither situated on forest or timberland nor is located near any such areas that are currently under production. There is no land in the vicinity of the project site that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would be no impact related to the loss of forest land or conversion of forest land to non-forest use. No further analysis is warranted in the EIR.

(e) As mentioned in responses (c) and (d), the project site is not designated as forest land and forest land or timberlands do not occur in the project vicinity. As mentioned in response (a) above, the project site is classified as Farmland of Statewide Importance and grazing land, therefore, resulting in the conversion of Farmland to non-agricultural use. The conversion of farmland would require further evaluation in the EIR.

(f) The project site is not subject to a Williamson Act Land Use Contract made pursuant to the California Land Conversion Act of 1965. The proposed project is located on and surrounded by lands pursuant to an active Williamson Act Land Use Contract. The project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone contract for any parcel of 100 or more acres (Section 15206[b][3] Public Resources Code). Thus, potential impacts will be further evaluated in the EIR.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district shall be relied upon to make the following determinations. Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
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 in nonattainment under an applicable federal or state ambient air quality standard? Specifically, would implementation of the project exceed any of the following adopted thresholds:				
	i. San Joaquin Valley Unified Air Pollution Control District:				
	Operational and Area Sources				
	Reactive organic gases (ROG): 10 tons per year.	☒	☐	☐	☐
	Oxides of nitrogen (NO_X): 10 tons per year.	☒	☐	☐	☐
	Particulate matter (PM_{10}): 15 tons per year.	☒	☐	☐	☐
	Stationary Sources - as Determined by District Rules				
	Severe nonattainment: 25 tons per year.	☒	☐	☐	☐
	Extreme nonattainment: 10 tons per year.	☒	☐	☐	☐
	ii. Eastern Kern Air Pollution Control District.				
	Operational and Area Sources				
	Reactive organic gases (ROG): 25 tons per year.	☐	☐	☒	☐
	Oxides of nitrogen (NO_X): 25 tons per year.	☐	☐	☒	☐
	Particulate matter (PM_{10}): 15 tons per year.	☐	☐	☒	☐
	Stationary Sources – as Determined by District Rules				
	25 tons per year.	☐	☐	☒	☐
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?	☐	☐	☒	☐

RESPONSES:

(a-d) The project site is located entirely within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), in the San Joaquin Valley Air Basin (SJVAB). The SJVAB is designated as a nonattainment area for both the State and federal ozone standards and the State particulate matter (PM2.5) standard. Project construction would generate emissions of reactive organic gases (ROG) and oxides of nitrogen (NOX), both of which are known as ozone precursors, and PM10 that could result in significant impacts to air quality in the area.

SJVAPCD's most recently adopted air quality management plans are its 2016 Ozone Plan for 2008 8-Hour Ozone Standard (SJVAPCD, 2016) and its 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards (SJVAPCD, 2018). Further analysis of the project's air quality impacts is warranted to determine whether the proposed project would conflict with or obstruct implementation of SJVAPCD's applicable air quality plan for attainment and, if so, to determine the reasonable and feasible mitigation measures that could be imposed. Land uses determined to be "sensitive receptors" to air quality include residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches.

The nearest sensitive receptors are residential uses in the surrounding area, the closest located directly across Copus Road, approximately 240 ft south of the project site. The nearest park/recreational area is Buena Vista Aquatic Recreation Area, approximately 10.5 miles northwest of the project site, the closest school to the site is the Lakeside Elementary, approximately 8 miles north of the project site, and Mercy Hospital which is located at Truxtun Ave in Bakersfield approximately 17 miles north. Facility operation activities may result in exhaust emissions and dust created from grinding and mulching that could adversely affect air quality for the workers at the facility and the nearest sensitive receptors.

The proposed project is not located within the Eastern Kern Air Pollution Control District (EKAPCD) and, therefore, its adopted thresholds do not apply. However, as noted in Response above, the project is located within the SJVAPCD, which is designated as a nonattainment area for the State and federal ozone standards and the State $PM_{2.5}$ standard. As such, the emissions of ozone precursors (ROG and NOx) and $PM_{2.5}$ during construction and operation of the project could result in a cumulatively considerable net increase of these criteria pollutants in the SJVAPCD. Thus, the project's contribution to cumulative air quality impacts in the SJVAPCD could be potentially significant.

Additionally, exposure to Valley Fever from fugitive dust generated during construction is a potentially significant impact. There is the potential that cocci spores could be stirred up during excavation, grading, and earth-moving activities, exposing construction workers and the sensitive receptor to these spores and thereby to the possibility of contracting Valley Fever.

The project would not have any stationary sources or equipment located on-site that would generate objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. These odors would be temporary and would be dispersed rapidly.

The above listed project impacts will be further evaluated in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
IV. 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 Game 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 Game 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?	☐	☐	☒	☐

RESPONSES:

(a) The project site contains previously disturbed agricultural land and does not contain any intact native vegetation communities. There is a potential for candidate, sensitive, or special-status plant and wildlife species to be present on-site or in the project area. The findings of field surveys conducted to determine the presence of candidate, sensitive, or special-status plant and animal species on-site and in the surrounding area will be included in the EIR.

(b) The project site is undeveloped and comprised of previously tilled agricultural land with minimal scrubby vegetation. The USFWS does not identify any critical habitats within or adjacent to the project site. The nearest critical habitat is located approximately 3.5 miles east of the project. This habitat is

for the Buena Vista Lake Ornate Shrew. Field surveys for riparian and other sensitive natural communities, including a biological assessment, will be completed for the proposed project and the results will be incorporated into the EIR. Additionally, protocol surveys, soils characterization, and hydrologic analysis will be prepared for the project. Impacts to riparian or other sensitive natural communities as a result of the proposed project are considered potentially significant and will be further analyzed in the EIR.

(c) Small portions of freshwater ponds are located on the project site. Both freshwater ponds are listed as PUBFx by the National Wetlands Inventory, this classifies ponds as Palustrine systems, with unconsolidated bottoms, that are semi-permanently flooded, and excavated by humans. There would be no development on areas where freshwater ponds are located, however, further analysis in the EIR is necessary to fully identify potential impacts to state or federally protected wetlands.

(d) While the project site is located outside of known habitat linkages in the region, the site may be used for more local wildlife movement and likely provides stopover and wintering habitat for birds. Project construction and operation could also remove both foraging and nesting/denning habitat for wildlife species. No known established wildlife corridors or native wildlife nursery sites are located within the project site; however, impacts to wildlife habitat and movement are potentially significant and will be evaluated in the EIR.

(e) The project site is located outside of the range of Joshua tree (*Yucca brevifolia*) which are protected under the California Desert Native Plants Act (CDNPA) and California Endangered Species Act (CESA). There are no oak woodlands located within the project site and the proposed project does not conflict with General Provision 1.10.10 of the Kern County General Plan regarding oak tree conservation. Implementation of the proposed project also does not have the potential to impact Joshua tree or oak woodland because none exist on the project site. The proposed project would be expected to have a less than significant impact on local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

(f) The project site does fall within the boundaries of the proposed Kern County Valley Floor Habitat Conservation Plan, specifically in the White Zone, which designates it as of lower conservation importance due to existing intensive agriculture and other uses. The project site does not fall within the Bureau of Land Management (BLM) West Mojave Plan Area, the BLM's Desert Renewable Energy Conservation Plan, or a Natural Community Conservation Plan. The project would be consistent with the Land Use, Open Space, and Conservation Element of the Kern County General Plan. There are no other adopted conservation plans for protection of biological resources governing the project area. Through unlikely, further potential impacts from the proposed project would be analyzed in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

V. Cultural Resources

Would the project:

a.	Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☒	☐	☐	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☒	☐	☐	☐
c.	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

RESPONSES:

(a-c) The project site consists of agricultural land. Development of the proposed project would require ground disturbance for grading, installation of the solar arrays, gen-tie line, other electrical improvements such as the BESS and placement of underground electrical and communications lines. The proposed project could potentially impact historical or cultural resources, including resources that are undiscovered or that may be buried underground. A cultural resources survey will be conducted for the proposed project as part of the EIR, to determine presence or potential presence of archaeological and historical resources and identify potential impacts to historical and/or archaeological cultural resources and to formulate avoidance or mitigation measures, if applicable.

There is no evidence that the project site is located within an area likely to contain human remains, and discovery of human remains during project earthmoving activities is not anticipated. Although, impacts to human remains are anticipated to be less than significant, inadvertent discovery of such remains is possible and this issue will be further evaluated in the EIR.

		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?	☐	☐	☒	☐

RESPONSES:

(a-b) Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Following implementation of the proposed project, energy would switch from consumption to production. Operation of the proposed project would lead to an overall increase in the County's Renewable Portfolio and would align with the stated General Plan policy to encourage the development of renewable energy within Kern County.

The above listed project impacts will be further evaluated in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

VII. Geology and Soils

Would the project:

a.	Directly or indirectly cause potential 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 wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☒	☐	☐	☐
f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

RESPONSES:

(a-f) Due to the location of active faults in the general region, strong seismic ground shaking could occur at the project site, resulting in damage to above and below ground structures and other site improvements if not properly designed to withstand strong ground shaking. Construction of the proposed project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the CBC which imposes substantially similar requirements for design to resist strong ground motions as the IBC. Adherence to applicable regulations would minimize the potential impacts associated with the proposed project.

A geotechnical investigation of the project site will be conducted to determine the physical characteristics of the underlying soils and geologic formations and to identify if any unstable conditions exist that could be exacerbated by proposed construction activities. The results of these investigations will be provided in the EIR.

The above listed project impacts will be further evaluated in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

VIII. 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 any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

RESPONSES:

(a-b) Greenhouse gas (GHG) emissions emitted by human activity are implicated in global climate change or global warming. The principal GHGs are CO_2, methane (CH_4), NO_X, ozone, water vapor, and fluorinated gases. The temporary construction activities associated with the proposed project, which would involve operation of heavy off-road equipment, on-road trucks (for deliveries and hauling), and construction worker commute trips, would generate GHGs through exhaust emissions. However, as a solar facility, the proposed project is expected to displace traditional sources of electricity production that involve combustion energy sources (e.g., burning coal, fuel oil, or natural gas). As such, the provision of solar energy by the proposed project would produce GHG-free electricity that is anticipated to offset GHGs that would otherwise be generated by traditional fuel combustion sources of electricity. The project's GHG emissions generated during construction of the project and the potential GHG offsets resulting from operation of the project, as well as any potential conflicts with any applicable plan, policy or regulation will be identified and quantified in the EIR. Additionally, the project's potential GHG impacts and the potential GHG offsets resulting from operation of the project will be examined in the EIR, with respect to the objectives of statewide programs to reduce GHGs associated with energy generation.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

IX. 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 involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d.	Be located on a site that 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 the adopted Kern County Airport Land Use Compatibility Plan, 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, directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐
h.	Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the project exceed the following qualitative threshold: The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:				

	Potentially	Less than	Less-than	No

	Significant Impact	Significant with Mitigation Incorporated	Significant Impact	Impact
i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and	☐	☐	☒	☐
ii. Are associated with design, layout, and management of project operations; and	☐	☐	☒	☐
iii. Disseminate widely from the property; and	☐	☐	☒	☐
iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.	☐	☐	☒	☐

RESPONSES:

(a-b) Wastes that would be generated during construction of the proposed project would be non-hazardous, and would consist of materials such as cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous, would be used in accordance with the manufacturer's specifications, and all applicable regulations. In addition, hazardous fuels and lubricants used on field equipment would be subject to a Construction Waste Management Plan and, if required, a Spill Prevention, Containment and Countermeasure Plan.

The operation of the proposed project would not involve the routine transport, use, or disposal of any hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. During construction, the proposed project would include the transport of general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as materials necessary to construct the proposed PV arrays.

Construction and operation of the proposed project may include the accidental release of storage materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Potentials hazards associated with BESS include increased potential for electrical shock and chemical release associated with the batteries used. Impacts resulting from the transport, use, or disposal of hazardous materials during construction and operation of the proposed project will be evaluated further in the EIR.

(c) As previously mentioned, the closest school to the project site is the Lakeside Elementary, located approximately 8 miles north of the project site. Therefore, the project site is not located within one quarter mile of a school. Additionally, the proposed project is not anticipated emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste. Therefore, there would no impact.

(d) Based on a review of the Cortese List Data Resources, The State Water Resources Control Board GeoTracker, and The California Department of Toxic Substances Control EnviroStor there are no hazardous materials sites located on the project site. The nearest hazardous materials sites listed on the State Water Resources Control Board's GeoTracker database are located approximately 2.6 miles

south and southeast of the project site. The site located south is a completed and closed Cleanup Program Site. The other site located southeast is an inactive, needs evaluation, DTSC Cleanup site. Therefore, impacts would be less than significant.

(e) The project is not within the boundaries of any airport as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP) (County of Kern, 2012). The nearest public airport is the Bakersfield Municipal Airport, located approximately 17 miles to the northeast. The project site is not located within any safety or noise zones for the Bakersfield Municipal Airport. Due to the nature of the proposed land use, impacts from air traffic hazards or excessive aircraft noise are not anticipated to occur for people residing or working in the project area with respect to the project's proximity to an airport. Therefore, there would be no impact.

(f) The project is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The site is located in a rural, sparsely developed area with limited population. The project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan. As required by routine and standard construction specifications administered by Kern County, road access would be maintained throughout construction, and appropriate detours would be provided in the event of potential road closures. Therefore, there is a less than significant impact related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan.

(g-h) According to the California Department of Forestry and Fire Protection (CalFire), Kern County Fire Hazards Severity Zone Maps, the project site is located within a Moderate Fire Hazard Severity Zone in a Local Responsibility Area (LRA) (CalFire, 2007). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The proposed project would comply with all applicable wildland fire management plans and policies established by CalFire and the Kern County Fire Department. Accordingly, the proposed project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Project-related facilities would not result in features or conditions that could potentially provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents. During construction and operation, workers would generate small quantities of solid waste (i.e., trash, food containers, etc.) that would be stored in enclosed containers, then transported to and disposed of at approved disposal facilities. Construction and operation of the proposed solar arrays and associated facilities would not produce uncontrolled wastes that could support vectors and would not generate any standing water or other features that would attract nuisance pests or vectors. Although impacts are anticipated to be less than significant, further analysis of this issue will be discussed in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
X. 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 off-site;	☒	☐	☐	☐
	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 hazard, tsunami, seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

RESPONSES:

(a) Construction of the project would be subject to County, State, and federal water quality regulations. The project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). Project construction activities have the potential to result in erosion, sedimentation, and discharge of construction debris, and could result in the discharge of wastewater and runoff at the project site. If not properly managed, this wastewater could violate the water quality

standards or waste discharge requirements of the RWQCB, or otherwise degrade surface or ground water quality. To reduce sediment production and storm water pollution, the project proponent would prepare and implement a project-specific drainage control plan, if necessary, which would include applicable BMPs to reduce the potential for erosion and sedimentation that could result from construction of the project. It is anticipated that appropriate BMPs and compliance with applicable regulations, including the NPDES Construction General Permit, would reduce potential water quality impacts to a less than significant level. Additionally, the proposed project contractor(s) would apply for coverage under the state's General Construction Permit for stormwater discharges from construction activities and would prepare a SWPPP that would include implementation of BMP erosion-control measures to control stormwater runoff. Site-specific BMPs would be designed by the contractor in compliance with regulations and permit conditions. A comprehensive hydrology and water quality impact analysis as well as a water supply assessment will be prepared, and the findings will be further analyzed in the EIR.

(b) During construction and following installation of the solar arrays, the majority of the site would remain as pervious surface. The design of the solar arrays is such that storm water infiltration would occur similar to the existing conditions. During construction, the proposed project would obtain water from either existing wells or purchase water from a local provider. The water would be trucked and stored on-site to be primarily used for dust suppression, soil compaction, concrete hydration and other miscellaneous activities requiring non-potable water during construction. The Applicant has identified the need for less than approximately 75 acre-feet of water during construction, primarily for dust-suppression, soil compaction, concrete hydration purposes, etc. Potable water would be brought to the site for drinking and domestic needs. A comprehensive hydrology and water quality impact analysis as well as a water supply assessment will be prepared, and the findings will be further analyzed in the EIR.

(c)(i) Construction of the proposed project, including but not limited to, construction of concrete pads for the switchyard, inverters, transformers, and O&M buildings as well as foundational supports for panel installation, soil compaction, and any grading may alter the existing drainage pattern of the project site. A hydrologic study would be prepared for the project in accordance with Kern County requirements, and potentially significant impacts to existing drainage patterns and flooding conditions on the project site will be analyzed in the EIR.

(c)(ii) Construction and operational activities associated with the proposed project would alter existing drainage conditions and create impervious surfaces that would have the potential to result in an increase in the rate or amount of surface runoff during storm events. A hydrologic study will be prepared for the project in accordance with Kern County requirements, and potentially significant impacts will be analyzed in the EIR.

(c)(iii) During construction and following installation of the solar arrays, the majority of the site would maintain its existing ground cover. The design of the solar arrays is such that storm water infiltration would occur similar to existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the project would generate a substantial source of polluted runoff. The construction period SWPPP and the operational period Water Quality Management Plan would ensure the proper control and treatment, if necessary, of any storm water prior to discharge. With adherence to site-specific BMPs, potential pollutants would be minimized to the extent practicable; nonetheless, this impact will be further discussed in the EIR.

(c)(iv) The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs for the project area, the east portion of the project site is located in a 100-year flood area (Zone A, 1% annual chance of flooding); see *Figure 8*. The proposed project would be reviewed by the Kern County Public Works Department-Floodplain for adherence to all floodplain management standards. Further analysis is required to identify appropriate mitigation/design measures to reduce potentially significant impacts from potential flooding and this analysis will be provided in the EIR.

(d) The project is not located near an ocean or enclosed body of water, and therefore would not be subject to inundation by seiche or tsunami. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity and are often triggered by heavy rainfall and soil that is not able to sufficiently drain or absorb water and the super-saturation results in soil and rock materials to become unstable and slide away. Due to the relatively flat topography of the project site and surrounding area, the potential to be inundated by mudflow is considered remote.

The east portion of the proposed project would be located within a Zone A – Special Flood Hazard Areas without a base flood elevation, refer to *Figure 8*. The project would be reviewed by the Kern County Public Works Department for adherence to all applicable floodplain management standards. Because of the potential for flood hazards to occur, and related risk of release of pollutants due to project inundation, further analysis of this is required in the EIR.

(e) The project site is located within the San Joaquin Valley Groundwater Basin which is governed by the Irrigated Lands Discharge Program under the Central Valley Regional Water Quality Control Board (CVRWQCB, 2006). All water usage for the proposed project would conform to all of the applicable plans and BMPs. A water supply assessment will be completed for the project to analyze potential impacts to groundwater resources, including any potential conflicts with the Integrated Regional Water Management Plan. This impact will be further analyzed in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XI. Land Use and 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 for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

RESPONSES:

(a) The project site is located on previously disturbed agricultural land. The surrounding land uses are designated by the Kern County General Plan as predominately agriculture, with some commercial uses. Surrounding land is primarily zoned Exclusive Agriculture. The nearest communities are The City of Taft, approximately 14 miles west and the City of Bakersfield, approximately 11.5 miles north. The proposed project would neither physically encroach into nor divide or restrict access to The City of Taft or The City of Bakersfield. No new roadways or other linear elements that would have the potential to restrict existing access or movement within the local community are proposed. The proposed project would not physically divide an established community and there would be a less than significant impact.

(b) The project site is located within the Kern County General Plan area. As shown on *Figure 4*, the project site consists of 1 parcel designated by the Kern County General Plan as map code 8.1 (Intensive Agriculture), 8.1/ 2.3 (Intensive Agriculture / Shallow Ground Water), 8.1/ 2.5 (Intensive Agriculture / Flood Hazard), and 8.4/ 2.3 (Mineral and Petroleum (Min. 5-Acre Parcel Size). No change to the existing land use designations is required or proposed with project implementation, and therefore, the project would not cause a significant environmental impact due to a conflict with any land use plan or policy for the purpose of avoiding or mitigating an environmental effect in this regard.

The project proponent is requesting a CUP to allow for the construction and operation of a solar facility and BESS. Use of the A zone district for a solar project is listed as an allowable use. At the end of the project's operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed or if it would seek an extension of its CUP. With approval of the requested CUP the proposed project is not anticipated to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. Additionally, the project is subject to the policies and provisions of the Kern County General Plan, the Kern County Zoning Ordinance. Further assessment will be provided in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

XII. 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?	☒	☐	☐	☐

RESPONSES:

(a) A small portion of the site is located within a Mineral and Petroleum designation from Kern County's General Plan. The portion of the site within this designation is located south of Copus Road, see *Figure 9*. However, the project does not propose any improvements within this area. The project site is identified as Mineral Resource Zone (MRZ) 1 for Portland Cement Concrete (PCC)-Grade Aggregate by the State Department of Conservation – Geologic Energy Management (CalGEM) Division. This identifies the area as having adequate information that indicates no significant mineral deposits are present (CGS, 2009). According to the Department of Conservation / Division of Oil, Gas, and Geothermal Resources (DOGGR), the existing facility is located just outside the boundaries of a designated oil or gas field. The closest oil field to the facility is the Rio Viejo Field, located immediately to the south project site. Additionally, DOGGR identifies two mines located on the project site, see *Figure 9*. The first is a Canceled Oil and Gas well operated by PYR Energy Corporation and leased by Blizzard, Well Number: 47X-31 and API: 0403022736. It is located in the center of the site closer to Copus Road (WellSTAR, 2022a). The second well is also an Oil and Gas well located approximately 270 ft from Copus Road. This well has no active permit and is Operated by Grapevine Energy, LLC and Leased by Bordeaux, Well Number: 1-31 and API: 0403063655 (WellSTAR, 2022b). Therefore, there is potential for the loss of availability of a known mineral resource, further evaluation of this impact would be required in the EIR.

(b) As mentioned previously, a very small portion of the project is located within a Mineral and Petroleum designation within the Kern County General Plan. The project site is not located within the County's NR (Natural Resources) or PE (Petroleum Extraction) zoned districts. Based on a review of California Geological Survey publications, portions of Kern County are rich in mineral deposits with numerous mining operations that extract a variety of minerals. As mentioned above the project site falls within MRZ 1 which identifies the area as having no significant mineral deposits. Additionally, the installation of the solar facilities would not preclude future mineral resource development after decommissioning of the solar facility. Overall, further analysis is warranted in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XIII. 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 a local general plan or noise ordinance or applicable standards of other agencies?	☒	☐	☐	☐
b.	Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project	☒	☐	☐	☐
d.	For a project located within the vicinity of a private airstrip or Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

RESPONSES:

(a-c) Land uses determined to be "sensitive" to noise as defined by the Kern County General Plan include residential areas, schools, convalescent and acute care hospitals, parks, and recreational areas, and churches. The nearest sensitive receptor is a residential residence located approximately 240 ft south of the project site. Noise generated by the proposed project would occur primarily during the construction phase whereas as the long-term operation of the solar facility would be relatively quiet.

Groundborne vibration and groundborne noise could originate from the operation of heavy off-road equipment and heavy-duty trucks delivering materials and machinery during the construction phase of the project. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. Operation of the Jasmine Solar Project would generate very little noise and would generate minimal noise from employee vehicle trips and work including repairs and maintenance of the facilities. Potential noise impacts during project construction or operations will be further analyzed in the EIR.

(d) The project is not within the boundaries of any airport as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP) (County of Kern, 2012). The nearest public airport is the Bakersfield Municipal Airport, located approximately 17 miles to the northeast. The project site is not located within any safety or noise zones for the Bakersfield Municipal Airport. Noise from occasional aircraft flyovers would not have a significant effect on the small workforce on-site There would be no impacts and no further analysis of this issue is warranted in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XIV. 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?	☐	☐	☐	☒

RESPONSES:

(a) Although the proposed project would provide new employment consistent with the adopted Kern County General Plan goals, plans, and policies, long-term employment opportunities would be minimal. The proposed project would require an operational staff of up to two (2) full-time employees.

During construction, it is estimated during non-peak periods approximately 60 workers would be on-site daily. During peak construction it is estimated that up to 550 workers could be on-site per day. The entire construction process is anticipated to take 12 months and initiate in 2023. Therefore, the majority of project-generated jobs would be from the local and regional area and would occur on a temporary and short-term basis. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California, and few, if any workers expected to relocate to the surrounding area because of these temporary jobs. If temporary housing should be necessary, it is expected that accommodations (i.e., extended stay hotels, apartments, RV parks, homes for rent or sale) would be available in the nearby communities. Therefore, the project is not anticipated to directly or indirectly induce the development of any new housing or businesses within the local communities.

During the operational phase, the project would require up to two full-time equivalent (FTE) personnel (or personnel hours totaling 2 FTE positions), who would commute to the site. Due to the small number of full-time employees, it is anticipated that the local housing stock would be adequate to accommodate operations personnel should they relocate to the area, without requiring the need for the construction of new housing. The proposed project would not directly or indirectly induce substantial unplanned population growth and further analysis and therefore would have a less than significant impact.

(b) The project site is currently undeveloped and does not contain any existing housing units. The proposed project would therefore not displace any existing people or housing, necessitating the construction of replacement housing elsewhere. No further evaluation of this issue is required in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

XV. 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 governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
i.	Fire protection?	☒	☐	☐	☐
ii.	Police protection?	☒	☐	☐	☐
iii.	Schools?	☐	☐	☐	☒
iv.	Parks?	☐	☐	☐	☒
v.	Other public facilities?	☒	☐	☐	☐

RESPONSES:

(a)(i) **Fire Protection.** The Kern County Fire Department provides fire suppression and emergency medical services to the project area. The project site would be served by Fire Station #53, located at 9443 Taft Hwy in Bakersfield, approximately 11.5 miles northeast of the project site. Adherence to all applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. However, construction and operation activities may result in increased demand for firefighting services in the area. Therefore, the potential impact on fire services from construction and operation of the project is considered potentially significant and will be further evaluated in the EIR.

(a)(ii) **Police Protection.** Law enforcement and public safety services in the project area are provided by the Kern County Sheriff's Department. The project site would be served by the Lamont Substation located at 12022 Main Street. Although the potential is low, the proposed project may attract vandals or thieves that would require response from the Sheriff's Department. On-site security measures (i.e., on-site monitoring equipment, gated access) would be provided and access to the project site during construction and operation would be restricted, thereby minimizing the need for local Sheriff surveillance. Nonetheless, project impacts on local sheriff services could potentially result in an increased demand for law enforcement services or require the construction of new facilities that could result in an environmental impact. This issue will be evaluated in the EIR.

(a)(iii) **Schools.** During project construction, a relatively large number of construction workers would be required. It is expected that most of these workers would live in the local as well as broader regional area and commute to the project site from the surrounding communities where their children would

already be enrolled in school. In addition, employee such as these would already be making contribution through local taxes that would be used to fund schools. The proposed project would not require employees or their children to relocate to the project area. Therefore, substantial temporary increases in population that would adversely affect local school populations are not expected. Likewise, the operational workforce is small (approximately 2 full-time positions) and not anticipated to generate a permanent increase in population that would impact school populations or require construction of new school facilities. Therefore, no impact on schools is anticipated to occur.

(a)(iv) **Parks.** The population increase that would be experienced during the construction phase of the proposed project would be temporary and limited to construction workers at the project site. Such conditions would not result in a substantial new demand for parks or recreational facilities. The number of employees required for project operations would be minimal and they would not likely frequent any public parks during, before, or after their work shifts. The up to 2 full-time equivalent employees would not result in construction of numerous new housing units that could significantly increase the local population and related demand for public parkland with the result of requiring the construction of new park facilities. Therefore, no impact to parks is anticipated to occur.

(a)(v) **Other Public Facilities.** Implementation of the proposed project may have impacts on the ability of the county to provide adequate county-wide comprehensive public facility services. Public policies in the Kern County General Plan require development to address economic deficiencies in public services and facilities costs. Therefore, the proposed project's impacts on public facilities are potentially significant and will be evaluated in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

XVI. Recreation

Would the project:

a.	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.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

RESPONSES:

(a) It is estimated that up to 550 workers per day during peak construction periods would be required on-site during construction of the proposed project. These workers would not have time to visit any local parks or recreation facilities during the workday. Further, few workers are expected to relocate to this area temporarily while the construction is underway and there would be little or no impact on local recreational resources after work hours. Operation of the proposed project would require employees for maintenance and monitoring activities, but they would likely be drawn from the local labor force and would commute from their existing permanent residences to the project site. However, even if the maintenance/monitoring employees were hired from out of the area and relocated to eastern Kern County, the addition of any such families to the project area would not result in a substantial increase in the number of users at local parks or recreational facilities. As a result, there would not be a detectable increase in the use of existing neighborhood or regional parks or other recreational facilities, and therefore, no deterioration of any such facilities would occur or require the construction of new facilities as a result of project implementation. Impacts would not occur, and further analysis is not warranted in the EIR.

(b) The proposed project does not include or require the construction of new or expansion of existing recreational facilities, and there are no recreational facilities on the project site that would be affected. No impact would result and no further analysis in the EIR is warranted.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XVII. Transportation and Traffic					
Would the project:					
a.	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☒	☐	☐	☐
b.	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?	☐	☐	☒	☐

RESPONSES:

(a) There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways. Due to the rural nature of the project area, pedestrian and bicycle traffic is limited. The project is not located along an existing bus route and few bus stops exist on roadways that are likely to be used during construction and operation of the proposed project. Further analysis in the EIR is required to determine whether construction traffic could disrupt normal traffic flows or otherwise conflict with the County's roadway performance policies and programs.

During operation, the proposed project would require up to two (2) full-time employees who would commute to and from the site and would result in an addition of average daily trips. Ongoing maintenance and periodic repair are also anticipated to produce negligible traffic impacts. These potential impacts on the local roadway system from construction related vehicle trips and project's operational traffic on the area roadway system will be further evaluated in the EIR.

(b) 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 shift the focus from driver delay to reduction of vehicular greenhouse gas emissions through creation of multimodal networks, and creation of a mix of land uses that can facilitate fewer and shorter vehicle trips. Vehicle miles traveled (VMT) is a measure of the total number of miles driven for various purposes and is sometimes expressed as an average per trip or per person. Construction traffic would be temporary and would not permanently affect VMT characteristics in this part of Kern County or elsewhere. Long-term, operational traffic would be limited, with a small work force of approximately two (2) full-time employees. It is not known where the employees would live or how long their commuting trips would be. According to technical guidance issued by the Office of Planning and Research, projects generating less than 110 or fewer daily vehicle trips may be

presumed to have a less than significant impact involving VMT. Further analysis of the operational VMT characteristics of the project is required to determine whether the project is considered a "low-VMT" project due to small daily traffic volumes alone, or whether more extensive analysis is warranted. An assessment of the project's VMT characteristics will be provided in the EIR, to ensure consistency with state and local guidance.

(c) The proposed project would be primarily accessed from existing Corpus Rd to the south. During construction, especially during peak periods of heavy truck traffic and peak levels of construction workers, there is a potential for conflicts between construction traffic and normal traffic flows, especially at intersections where queuing could occur. This requires further analysis in the EIR.

No new roadway design or features (i.e., sharp curves, dangerous intersections, or other hazardous features) would be required that could result in transportation-related hazards or safety concerns. The new access road and internal site access roads must be designed in accordance with the County's street standards that assure safe ingress/egress. The project buildings and other structures would be set back from roadways as required by the Kern County Zoning Ordinance. Given these considerations, significant impacts related to increased hazards are not anticipated to occur; however, additional analysis will be included in the EIR.

(b) Emergency vehicle access must be maintained at all times throughout construction activities, in accordance with the County's routine/standard construction specifications. Further, construction activities would not be permitted to impede emergency access to any local roadways or surrounding properties. All driveways and internal site access roads would be constructed to accommodate all emergency vehicles and personnel. Construction period impacts are considered less than significant but will be further analyzed in the EIR. Although no significant operational impacts related to emergency access are anticipated to occur, further analysis of this issue will be provided in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XVIII. Tribal Cultural Resources				
Would the project:				
a. 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:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register or historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
ii. 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.	☒	☐	☐	☐

RESPONSES:

(a)(i)-(a)(ii) Since the project site is undeveloped, there is a potential for tribal cultural resources to exist either on-site or on surrounding lands. Therefore, the proposed project has the potential to impact tribal cultural resources during site clearance and earthmoving activities. All tribes with possible cultural affiliation and interest within the project area will be notified pursuant to the requirements of Assembly Bill 52, and consultation with the potentially affected tribes will occur, as appropriate, between the County and the tribes. Further evaluation in the EIR is warranted to identify potential impacts to tribal cultural resources and to formulate avoidance or mitigation measures, if applicable.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XIX. 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?	☒	☐	☐	☐
c.	Result in a determination by the wastewater treatment provider that 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 management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

RESPONSES:

(a) The proposed project would not require or result in the relocation or construction of new or expanded municipal wastewater facilities, and no connection to a public wastewater system is required or proposed. Impacts would be less than significant in this regard; however, further analysis in the EIR will be provided. The proposed project does not require expanded or new storm drainage facilities because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events. The proposed project is not anticipated to result in a significant increase in water demand/use; however, water will be needed for solar panel washing and dust suppression. Impacts associated with construction of the telecommunications and transmission line facilities will be evaluated in the EIR.

Impacts would be potentially significant and further analysis in the EIR is warranted.

(b) Water demand for panel washing and O&M domestic use is not expected to exceed 0.3 acre-feet per year during operation. Non-potable water usage during construction, primarily for dust-suppression, soil compaction, concrete hydration purposes, etc. is not expected to exceed 75 acre-feet. Water is anticipated to be obtained from existing wells or purchased from a local provider and delivered via truck from an off-site source(s). A water supply assessment will be completed for the project to analyze potential water sources and potential impacts to water supplies. This potentially significant impact will be addressed further in the EIR.

(c) The proposed project will be subject to the requirements of the Central Valley RWQCB for water and wastewater discharges. Portable toilets would provide for wastewater disposal during project construction and no connection to a public system for wastewater treatment would be required. Due to the limited number of employees for project operations, the project would not generate a substantial amount of wastewater. The proposed project would include construction of an on-site septic system and leach field to serve the O&M building. All wastewater disposal for project operations would be handled on-site. Therefore, the project would not adversely affect any existing wastewater treatment facilities, further analysis of this issue will be included in the EIR.

(d) The proposed project is not expected to generate a significant amount of solid wastes because of the small number of workers and the absence of activities that would generate wastes on an ongoing basis. Materials brought to the project site would be used to construct facilities, and few residual waste materials are expected. Non-hazardous construction refuse and solid waste would be either collected and recycled per the Construction Waste Management Plan or disposed of at a local Class III landfill, while any hazardous waste generated during construction would be disposed of at an approved off-site location. It is not anticipated that the amount of solid waste generated by the proposed project would exceed the capacity of local landfills needed to accommodate the waste. Impacts are anticipated to be less than significant.

(e) The proposed project would generate solid waste during construction, operation, and decommissioning, thus requiring the consideration of waste reduction and recycling measures. Further analysis of the pertinent solid waste reduction and management regulations applicable to this project will be included in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact

XX. Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☒	☐

RESPONSES:

(a-d) According to the California Department of Forestry and Fire Protection (CalFire), Kern County Fire Hazards Severity Zone Maps, the project site is located within a Moderate Fire Hazard Severity Zone in a Local Responsibility Area. Therefore, the potential for wildfire on the project site exists. The site is located in a rural, sparsely developed area with limited population. The project site is not identified for any purpose in an adopted emergency evacuation plan to address wildfires or other types of emergencies. Further analysis of prevailing winds is required to determine if there are periodic high winds that could influence the spreading and velocity of wildfires. Adherence to applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. The proposed project involves the development of a solar energy generation and storage facility. The proposed project would include the construction of power transmission lines, inverters, roads, and an energy storage facility.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XXI. 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 significant 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 that would cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

RESPONSES:

(a) The EIR's biological, cultural, and tribal cultural resources sections will discuss specific project impacts on plants and wildlife including avian species and impacts to cultural and tribal cultural resources. The document will also evaluate the project's contribution to cumulative biological, cultural and tribal cultural resources impacts and propose mitigation that will reduce the impacts to less than significant levels, where feasible.

(b) The project has the potential to contribute to cumulatively significant aesthetics, air quality, biological resources, cultural resources, tribal cultural resources, greenhouse gas emissions, traffic, and wildfire impacts. Such impacts could occur during the construction phases and/or as a result of the fully built and operational project. The EIR will evaluate the project's contribution to cumulative impacts in these and other areas.

(c) The proposed project would not result in the long-term air pollutant emissions or noise sources that would adversely affect nearby sensitive receptors. The solar farm would not include any kinds of industrial processes or equipment that would generate hazardous substances or wastes that would threaten the well-being of people on- or off-site. However, short-term construction activities could result in temporary increases in pollutant concentrations and potentially significant off-site noise impacts. Pollutants of primary concern commonly associated with construction-related activities

include toxic air contaminants gaseous emissions of criteria pollutants, and fugitive dust. Within the project area, the potential for increased occurrences of Valley Fever is also of concern. Human health impacts from the short-term cumulative contribution to air quality impacts from project construction will be further evaluated in the EIR.

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Appendix B

Agricultural Conversion Study



Jasmine Solar Project

Agricultural Conversion Study

prepared for

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1 Project Description

1.1 Introduction

This study analyzes the potential direct and indirect conversion of farmland, conflict with adjacent farmland, and agricultural diminishment process of the Jasmine Solar Project (herein referred to as Project) in unincorporated Kern County, California. Rincon Consultants, Inc. (Rincon) prepared this study for SF Jasmine, LLC for use in support of environmental documentation being prepared for the Project pursuant to the California Environmental Quality Act (CEQA).

1.2 Project Description

The proposed Project consists of an approximately 492-acre photovoltaic energy facility (Facility) and energy storage system capable of producing up to 70 megawatts (MW) of power. Power generated by the Project will be transferred to the Pacific Gas and Electric (PG&E) Lakeview Substation via a 0.5-mile gen-tie line that will enter through the northwest corner of the substation property. The Project is expected to be placed in service by the end of 2023. The proposed Facility would consist of Photovoltaic (PV) modules and trackers, inverters and medium voltage transformers, Direct Current (DC) collection, an onsite substation, battery storage, telecommunications, meteorological data collection, lighting signage, access roads, and the gen-tie corridor. Each of these Project components is described in more detail below.

PV Modules and Trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The tracking systems are supported by metal posts (piles) that are driven into the ground with a pile driving machine. Pile placement begins with a precise surveyed layout, ensuring proper positioning of tracker assembly parts. Affixed to the top of each pile is a pile cap and bearing assembly that supports and allows proper movement of the torque tube assembly. Single axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with a mechanical drive arm and tube assembly that “pushes and pulls” the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small-geared motor mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The panels are typically constructed of blue or black glass. A plastic binding material and frame provides structural rigidity. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed Facility would be certified to comply with industry standard quality testing. Panels would be electrically connected. The proposed Facility will be designed in accordance with local and state codes and regulations. The final panel selection would be determined at the detailed project-engineering phase per market availability.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS.

The proposed Facility's panels would be organized in rows in a uniform grid pattern, with each row separated by between 10 to 20 feet (from post to post). Another mechanical feature of the proposed Project's tracker system includes a wire management system that would provide support and containment of the DC wires used to collect the output of the panels and move output to the PCS. The panel and tracker features allow for a natural light regime between and under the panels, supporting the co-management of solar energy generation, agriculture, and wildlife.

Inverters and Medium Voltage Transformers. The proposed Facility inverters, transformers, and other electrical equipment comprise each PCS. The footprint of each PCS, which is generally mounted on a concrete pad or piles, would be approximately 12 feet by 30 feet. The proposed Project would require approximately 40 PCS, depending on final design details. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5-kV). The Project would use Power Electronic HEM Central inverters or equivalent and one medium voltage transformers per inverter. Each inverter and transformer would be installed as per manufacturer's requirements.

Electrical Collection and Distribution System. The DC output of multiple rows of PV modules connected in series would be collected through one or more combiner boxes and associated electrical wiring located throughout the Project site. The power would be delivered via an underground cable network to the inverters in the electrical equipment enclosures at the PCS, described above. Multiple transformers electrically connected in series would deliver AC power to the Project Substation located on-site.

Project Substation. The Project Substation is proposed to be in the southeast corner of APN 295-130-78. The Project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. In order to allow for interconnection with the proposed project, the Project Substation will be expanded to accommodate for additional electrical equipment, breaker, and control switching equipment. The Project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. The Project Substation would also contain a control house building. The Project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

The Project Substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Telecommunications. The proposed Facility would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line, installed above and/or below ground, attached to either existing utility lines located outside of the Project or the new gen-tie. The proposed Facility telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the point of connection to existing telecommunications infrastructure and the Lakeview Substation. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection to the existing telecommunication facilities would be within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) coming into the Substations as part of

the standard substation design criteria. Below ground installations are usually installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Telecommunication lines may also be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The site will also have internal Facility telecommunications expected to be provided by the local provider in the area.

Meteorological Data Collection System. The proposed Facility would require up to four meteorological data collection systems. The systems, which would be mounted at various locations throughout the proposed Facility, would include a variety of instruments to collect meteorological data. Meteorological data would be collected at the maximum height of the solar panels or approximately 15 feet above the ground.

Battery Storage Component. The proposed Facility may include the installation of a battery storage component. Storage components are advantageous for renewable energy projects because they allow energy to be reliably fed to the grid from an otherwise intermittent energy production source. The battery system would consist of commercially available lithium ion batteries housed in enclosures. The enclosures would be approximately 8 feet wide by 40 feet long by 9.5 feet high (2.4 meters wide by 12 meters long by 2.9 meters high). The battery storage component would have a footprint of approximately 1 acre and would be immediately adjacent to the Project's Substation. Site preparation required for the battery storage enclosures requires leveling the area for a flat concrete foundation.

The proposed lithium ion batteries would principally comply with the UL 9450 standard for outdoor energy storage enclosures. The Project will be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The Applicant would select Battery Energy Storage System (BESS) providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of lithium-ion stationary BESS.

The Project would include current best practices for fire safety. The BESS would contain a safety system as required by NFPA 855 and tested under the UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The enclosure wall is designed to contain the fire and prevent propagation

Lighting. The proposed Facility lighting would allow for ongoing maintenance and security. Low-level lighting may be installed at the entry gates, Project Substation, inverter pads, and O&M Building. Proposed Facility lighting outside of the substation would be downward facing, shielded or otherwise modified to minimize emission of light or glare beyond the property line, or upward into the sky.

Signage. Proposed Facility signage installed on the fence in the vicinity of the main entry gates would identify the Project owner, operator, and emergency contacts and provide safety and security information. Small-scale signage would be posted at the main entry gates and intermittently along the perimeter fencing on exterior parcel boundaries, to indicate "No Trespassing" and "Private Property" for security and safety purposes. All signage would conform to Kern County signage requirements.

The Generation-Tie In. The 70 kV gen-tie would interconnect the Project Substation to the existing PG&E Lakeview Substation. The gen-tie is proposed to extend to the west from the Project Substation for approximately 0.60 miles. The gen-tie right-of way would be from 25- to 75-feet-

wide. Approximately 25 new poles would be installed to accommodate the gen-tie. The new poles would be constructed of either steel or wood at a maximum of 125 feet tall.

Access Roads. The proposed Facility would be primarily accessed off Copus Rd and Old River Rd adjacent to the Project site and gen-tie corridor. Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions

Lakeview Substation. The existing Lakeview Substation, operated by PG&E, would require modifications to accommodate the proposed Project gen-tie connection but these modifications. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment would require the expansion of the existing Lakeview Substation, including the filling of the agricultural pond directly west of the substation.

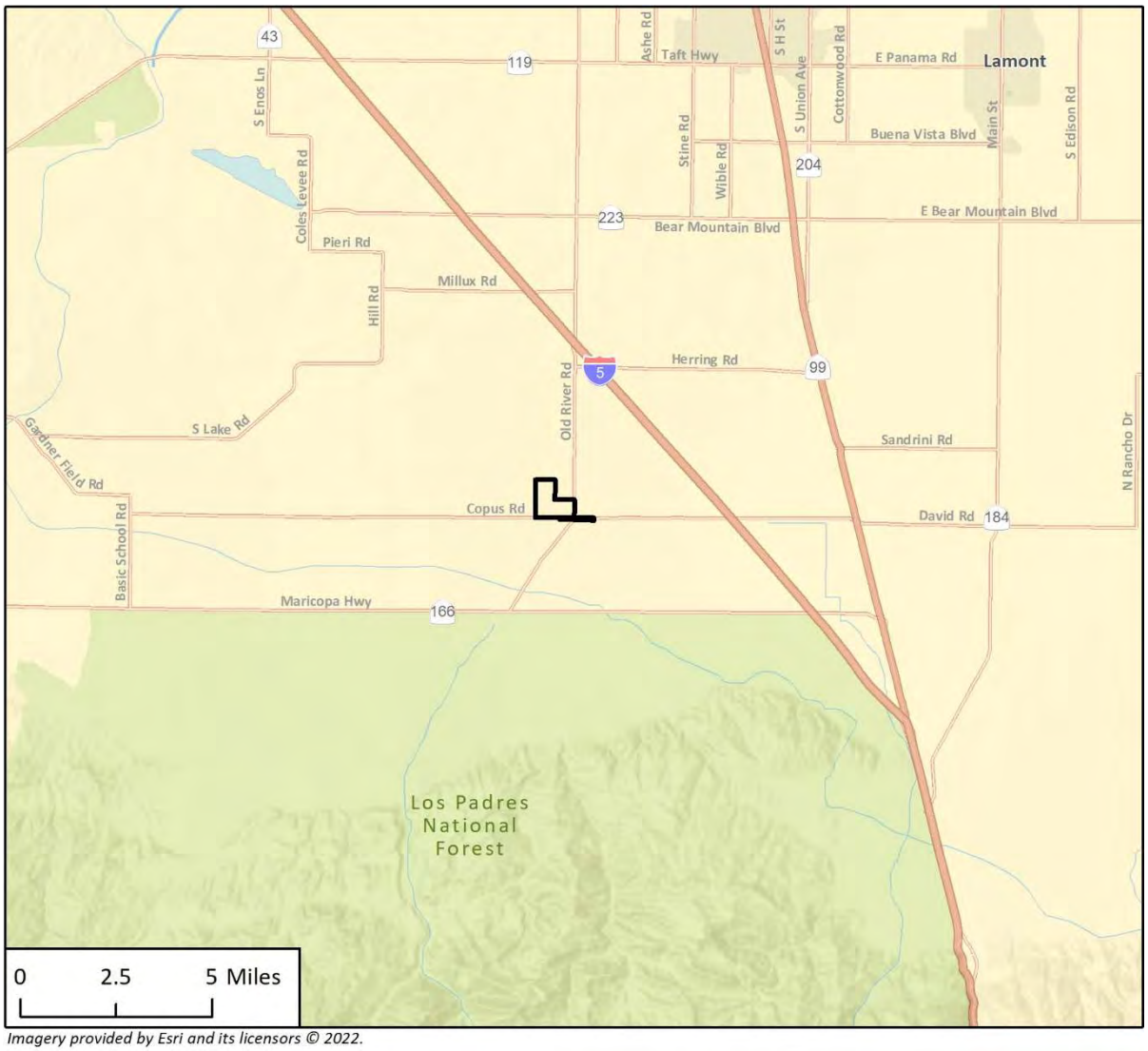
1.3 Project Location

The Project site is located in San Joaquin Valley in southwestern unincorporated Kern County at the intersection of Old River Road and Copus Road. The site is approximately four miles west of Interstate 5 and approximately three miles north of State Route 166. The Project site is approximately 15 miles east of Maricopa. The surrounding area consists of actively farmed agricultural land. Old River Road is along the eastern boundary of the site, while Copus Road is adjacent to the Project site's southern boundary. The Project site would be located on properties identified by five Assessor's Parcel Numbers (APN), two of which are pending a parcel split: APN 295-130-78; APN 295-130-36 (parcel split pending); and APN 295-130-80 (parcel split pending). The total area of the site is approximately 520 acres. Approximately 492 acres of the Project site would be developed and occupied by the proposed 70 MW solar facility.

The Project site is zoned Exclusive Agricultural (A) in the Kern County Zoning Ordinance. Existing land use at the Project site is primarily dry-farmed agriculture that has been intermittently irrigated. For the past 10 years, the Project site has been periodically in low-yield agricultural production (tilled, seeded, and harvested for winter wheat); occasionally irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops. The majority of the Project site is under a Williamson Act contract, but not under Farmland Security Zone contract.

Existing land uses surrounding the Project site consist of agriculture, solar development, and a few rural residences. Figure 1 shows the Project site's regional location, Figure 2 shows an aerial view of the Project site and surrounding area, and Figure 3 shows the Project's Williamson Act contract lands.

Figure 1 Regional Location



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Project Area

N



Figure 2 Project Site Location



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Figure 3 Surrounding Williamson Act Lands



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Additional data provided by Kern County, 2022.

2 Background

2.1 Overview of Agricultural Setting

The Project site is in Wheeler Ridge-Maricopa Water Storage District. The District's agricultural development expanded significantly in the 1940's, peaking in the mid-1970s. It has since shifted from field crops to more permanent crops in the 1990s. Permanent crops, primarily almonds, citrus, and grapes, account for slightly more than 75 percent of the total area of the crops planted in the District's service area in 2020. The current crop makeup of the District has evolved with the conversion from annual crops to high value permanent crops over time, which has led to a "hardening" of the total water requirement (WRMWSD 2021a). According to an AcreValue report, the Project site has been growing Alfalfa and winter wheat. A third of the fields are now fallow. Pistachios were last grown in 2017 and the percent of fallow fields increased on those parcels of land (Appendix A).

Soils

The soil map unit description for the Project site in 100 percent Calflax loam, 0 to 1 percent slopes. The soil depth to restrictive feature and water is more than 80 inches. Calcium carbonate equivalent is 0 to 5 percent (Appendix B). This area has a farmland type of Farmland of Statewide Importance.

Land Capability Classification

The capability unit indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VII, with soils having the fewest limitations receiving the highest rating (Class I). None of the soils onsite are rated Class I. The Project area's Calflax Loam are rated Class IIIs for irrigated soils, and class VII for non-irrigated soils.

The Storie Index provides a numeric rating based on a 100-point scale of the relative degree of suitability or value of a given soil for intensive agriculture. The Storie Index assesses the productivity of a soil from the following four characteristics: Factor A, the degree of soil profile development; Factor B, surface texture; Factor C, slope; and Factor X, other soil and landscape conditions including the subfactors drainage, alkalinity, fertility, acidity, erosion, and microrelief. A score ranging from 0 to 100 percent is determined for each factor, and the scores are then multiplied together to generate an index rating (University of California Division of Agriculture and Natural Resources 2008). Storie Index numerical ratings have been combined into six classes as follows:

- Grade 1: Excellent (81 to 100)

- Grade 2: Good (61 to 80)

- Grade 3: Fair (41 to 60)

- Grade 4: Poor (21 to 40)

- Grade 5: Very poor (11 to 20)

- Grade 6: Nonagricultural (10 or less)

The approximate 520 acres of Calflax loam soil has a Storie Index of 79. This score fall under grade 2 (good) on the Storie Index numerical class.

Water

The Project site is located in Wheeler Ridge-Maricopa Water Storage District where water supplies are comprised of State Water Project (1970,088 acre-feet untreated surface water), local groundwater, and other imported supplies. From 2016 to 2020, the largest water supply sources in the district came from the State Water Project which delivered on average approximately 47 percent of total water deliveries, and groundwater pumping delivering approximately 31 percent. From 1971 to 2020, the District delivered on average 169,000 acre-feet annually (WRMWSD 2021a). Except in drought years, imported surface supplies are sufficient for most crops within the District's Surface Water Service Area (SWSA) and negate the need for ground water pumping. However, by the 1990s, State Project supplies became increasingly unreliable, and the District sought additional dry year reliability by acquiring 16 new water wells and by participating in the Kern Water Bank, the Pioneer Project, and the Berrenda Mesa Project (WRMWSD 2021b). Current grower demands vary from 175,000 to 185,000 acre-feet per year of supply to farmlands within the SWSA (under the terms of recorded long-term agricultural water service contracts). In 2020, about 92,000 acres of farmland within the District were irrigated. Approximately 72,074 acres were irrigated acres within the SWSA and 20,000 acres were irrigated acres of farmland outside of the SWSA, but within the District's boundaries. Current District facilities can also provide temporary water service to about 18,000 acres of additional farmlands. The current irrigated land area within the District is expected to remain relatively stable for the foreseeable future (WRMWSD 2021a). The Project site, in the last 10 years has been, provided four- to five-acre feet of water annually (Idemitsu Renewables 2021).

Trends in State and County-wide Agricultural Land Conversion

The Department of Conservation has recorded the conversion of over 1.5 million acres of agricultural land in California to nonagricultural purposes since 1984. During the period of 2014 to 2016, irrigated farmland in California decreased by 11,165 net acres. The highest-quality farmland, known as Prime Farmland, decreased by 18,312 net acres, coupled with a Farmland of Statewide Importance decrease of 26,557 net acres. The addition of 33,704 net acres of irrigated crops on lesser quality soils partially offset these losses. Urban and other development, which totaled 70 square miles (44,942 net acres) for the 2014 to 2016 period, was approximately the same as the previous period (2012 to 2014). Of the 44,942 acres of new urban and built-up land – which includes housing, infrastructure, and other development – the highest amount, 47 percent, occurred in the San Joaquin Valley region. This is the first time the San Joaquin Valley has taken the top spot in the State for new urban and built-up land since Farmland Mapping and Monitoring Program (FMMP) began compiling regional conversion statistics in 1990. Nine out of the top ten counties for this growth were in the San Joaquin Valley and Southern California regions. These two regions accounted for 85 percent of total urban growth. During this period, new urban and built-up land included solar facility construction contributing over 19,000 acres (California Department of Conservation 2019).

Kern County had the largest increase in urban and built-up land in the State with 7,583 acres, due primarily to the development of solar power facilities. In addition, the most acreage converted directly from irrigated farmland to urban and other built-up land at 2,409 acres. Kern County also exhibited the largest conversion of Prime Farmland directly to urban land – 2,200 acres. Conversions from irrigated farmland to urban land totaled 11,132 acres in 2016 compared to 14,578 acres last update, a decrease of 24 percent (California Department of Conservation 2019).

2.2 Regulatory Setting

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation (DOC) is the state agency that administers the FMMP. The FMMP provides a classification system for farmland based on technical soil ratings and current land use. The purpose of the FMMP is to provide impartial data to decision-makers to be used in land use decisions. It is an informational service only and does not have regulatory jurisdiction over local land use decisions. The FMMP also produces "Important Farmland Maps" which utilize many of the same criteria for resource quality (i.e., soils) along with land use information. Once soils are mapped, they are grouped into the following categories that have specific definitions. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as "farmland."

- **Prime Farmland (P).** 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 (S)**. 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.
- **Unique Farmland (U)**. Farmland of lower quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date**.**
- **Farmland of Local Importance (L).** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land (G).** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- **Urban and Built-up Land (D).** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land (X).** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act of 1965 or the Williamson Act

The California Land Conservation Act of 1965 (Williamson Act, Government Code Section 51200 et seq.) preserves open spaces and agricultural land in exchange for property tax breaks. The Williamson Act discourages urban sprawl and prevents landowners from developing their property for the greater land value of commercial and/or residential uses. The Williamson Act is a state program implemented at the county level that allows agricultural landowners to contractually agree to retain land included in an agricultural preserve in agricultural or open space uses for 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year unless not renewed or cancelled, so that the contract always has a 10-year period left.

Farmland Security Zone Act

The Farmland Security Zone Act was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. (Government Code sections 51296-51297.4). Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone contracts must be for an initial term of at least 20 years.

County

Kern County Zoning Ordinance (Title 19 of the Ordinance Code of Kern County)

Chapter 19.12 Exclusive Agriculture (A) District

The purpose of the Exclusive Agriculture (A) District (Chapter 19.12) is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Uses in the A district are limited primarily to agricultural uses and other activities compatible with agricultural uses. Allowable land uses within the A district are set forth in Sections 19.12.020 and 19.12.030 and include those associated with growing and harvesting of crops, breeding and raising animals, agricultural industries, residential uses to house farm workers or the landowner, Christmas tree farms, utility corridors, resource extraction, waste facilities, institutional/educational uses, and various miscellaneous uses such as animal shelters and clubs. Facilities permitted on properties zoned A with approval of a conditional use permit (CUP) include those associated with recreation, entertainment, and tourist facilities, utilities and communications, resource extraction and energy development (i.e., wind and solar generators, mining, dams, batch plants), institutional uses (i.e., churches, zoos, government facilities), and schools.

Kern County Pathway for Processing: Conversion of Agricultural Land to Solar PV Use

Kern County Board of Supervisors developed a conversion of agricultural land to solar PV use flowchart to identify pathways to analyze potential impacts related to the conversion of agricultural uses for solar development. This flowchart will direct the policy on how to resolve the loss of economic benefits. The conversion of agricultural land represents only one component of the overall environmental and land use compatibility analysis. Compliance with these requirements does not grant or guarantee that a perspective project will be approved.

The Board of Supervisors considers a site to be productive farmland and require mitigation for the loss of farmland at a ratio of 1 to 1 if the site has been actively farmed five years or more out of the last 10 years, and designated Prime, Farmland of Statewide Importance or Unique Farmland by the

FMMP. The replacement land for the proposed solar project must be in Kern County. In addition to the standard replacement land. As a policy determination by the Kern County Board of Supervisors, the project proponent shall implement one of the following options:

- Replacement land shall be acquired at a ratio of up to 1.5 to 1.
- Project shall fund, at an equivalent amount, a program that benefits the long term stability of agricultural production in Kern County. Examples include, but not limited to the Shafter Cotton Research Station, local FFA or 4-H organizations or agricultural pest management programs.

If the site has been actively farmed four years or less out of the last 10 years and designated Prime, Farmland of Statewide Importance or Unique Farmland by the FMMP, an environmental analysis is required to evaluate why the site has not been farmed more than four years. If the analysis supports that the site does not have long term viability for farmland use, the Board of Supervisors will not consider the site to be the most productive Farmland. If the site was actively farmed this past year or supports a conclusion that the site is adequate for farming activities, then standard compensation mitigation will be required at a ratio of 1 to 1. In addition, a condition will be placed on the project requiring the submittal of a vertebrate pest and weed management plan, in compliance with other biological requirement.

If the site is not designated Prime, Statewide Important or Unique Farmland, the proposed solar project would not result in the conversion of any agricultural land and no farmland conversion mitigation would be required under CEQA.

3 Impact Analysis

3.1 CEQA Checklist

The following analysis is provided to support environmental documentation pursuant to CEQA. The conclusions of the study are summarized in Table 1.

Table 1 Summary of Impacts

Impact Statement	Project Level of Significance	Applicable Mitigation Measures
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use	Less than significant impact with mitigation.	Mitigation measure AG-1
Conflict with existing zoning for agricultural use or a Williamson Act contract	Less than significant impact	None
Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use	Less than significant impact	None
Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone contract for any parcel of 100 or more acres[1]	No impact	None
Causes conversion of significant agricultural lands, as defined by the California Agricultural Land Evaluation and Site Assessment (LESA) Model (1997).	Less than significant impact with mitigation.	Mitigation measure AG-1

[1] Section 15205(b)(3) Public Resources Code

3.2 Guidelines for Determining Impact Significance

The following criteria from the Kern County CEQA Implementation Document and Kern County Environmental Checklist were used to evaluate potential effects on agricultural resources. Based on these criteria, the Project would have a significant effect on agricultural resources if it would:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.
2. Conflict with existing zoning for agricultural use or a Williamson Act contract.
3. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.
4. Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone contract for any parcel of 100 or more acres.
5. Causes conversion of significant agricultural lands, as defined by the California Agricultural Land Evaluation and Site Assessment (LESA) Model (1997). Land is classified as significant agricultural land if it achieves any of the following LESA scores:

a) Total LESA score of 40 to 59 points and Land Evaluation (LE) and Site Assessment (SA) scores greater than or equal to 20 points each.
b) Total LESA score of 60 to 79 points and either LE or SA scores less than 20 points.
c) Total LESA score of 80 to 100 points.

3.3 Methodology

The Project site was evaluated using Kern County Board of Supervisors' Conversion of Agricultural Land to Solar PV Use flowchart and the Land Evaluation & Site Assessment (LESA) Model (1997) to rate the quality and availability of agricultural resources. The potential for impacts to agricultural resources is analyzed using available data from the FMMP. The significance of agricultural resources is determined by identifying if the project site is on Prime Farmland, Unique Farmland and Farmland of Statewide Importance, and the activity of the site out of the last 10 years.

The Project site was evaluated using the California LESA Model to rate the quality and availability of agricultural resources and to identify whether the Project would meet the threshold criteria as having a significant impact to Agricultural Resources under the CEQA Guidelines. As stated in Appendix G of the CEQA Guidelines, the LESA Model is intended to provide lead agencies with an optional methodology to ensure significant effects on the environment of agricultural land conversion are quantitatively and consistently considered in the environmental review process. The model provides an approach for rating the relative quality of land resources using a point-based evaluation composed of six different factors. Two Land Evaluation (LE) factors are based on measures of soil resource quality: 1) the Land Capability Classification (LCC) and 2) Storie Index Score. The Site Assessment (SA) score is based on four factors that, when added together, make up 50 percent of the total LESA: Project size is 15 percent, water resource availability is 15 percent, surrounding agricultural land is 15 percent, and surrounding protected resource land is five percent.

For the Project, each of these factors is separately rated. The factors are then weighted relative to one another and combined, resulting in a single numeric score for the Project, with a maximum attainable score of 100 points. This Project score becomes the basis for making a determination of a Project's potential significance, as summarized below in Table 2.

Table 2 California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA sub-scores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA sub-score is less than 20 points
80 to 100 Points	Considered Significant

Notes: LE- Land Evaluation, SA- Site Assessment

Source: Department of Conservation 1997

3.4 Evaluation of Potential Agricultural Resource Impacts

Threshold 1:	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.

Impact AG-1 THE PROJECT WOULD RESULT IN THE CONVERSION OF FARMLAND OF STATEWIDE IMPORTANCE TO NON-AGRICULTURAL USE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The Project site is designated as Farmland of Statewide Importance pursuant to the FMMP and would convert approximately 490 acres of Farmland to a solar facility. In addition, based on the 10-year farming history, the County would consider the site to be productive farmland. The Project would convert Farmland of Statewide Importance to non-agricultural use; therefore, the impact is potentially significant.

Mitigation Measures AG-1

The following mitigation would be required to reduce potential impacts related to Farmland conversion. Kern County considers the site to be productive farmland that requires mitigation for the loss of farmland at a ratio of 1 to 1. The replacement land for the proposed solar Project must be in Kern County. In addition to the standard replacement land, as a policy determination by the Kern County Board of Supervisors, the Project proponent shall implement one of the following options:

- Replacement land shall be acquired at a ratio of up to 1.5 to 1.
- Project shall fund, at an equivalent amount, a program that benefits the long term stability of agricultural production in Kern County. Examples include, but not limited to the Shafter Cotton Research Station, local FFA or 4-H organizations or agricultural pest management programs.

Significance After Mitigation

Impacts would be less than significant with mitigation. The replacement land in Kern County of equal size to the Project site would alleviate productive farmland loss by preserving land available for farming crops and regain economic loss of crops in Kern County.

Threshold 2:	Conflict with existing zoning for agricultural use, or a Williamson Act contract.

Impact AG-2 THE PROJECT WOULD NOT CONFLICT WITH EXISTING ZONING FOR AGRICULTURAL USE; HOWEVER, IT WOULD CONFLICT WITH AN EXISTING WILLIAMSON ACT CONTRACT. THIS WOULD NOT RESULT IN AN ENVIRONMENTAL IMPACT UNDER CEQA. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The Project site is zoned Exclusive Agriculture (A). Pursuant to Sections 19.12.020 and 19.12.030 of Kern County Zoning Ordinance, construction, and operation of solar facilities on land zoned A require the approval of a CUP. Therefore, pending the discretionary approval of a CUP, the proposed Project would be a permitted use on the Project site under the Zoning Ordinance.

The majority of the Project site is located on lands subject to a Williamson Act contract. The Project applicant is in the process of filing for non-renewal. While the Project would conflict with the existing Williamson Act contract, Williamson Act contracts are contracts between government with

private landowners for the purpose of temporarily restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. Therefore, while this may result in a land use conflict, it would not result in a direct or indirect impact on the environment; therefore, it does not constitute an environmental impact under CEQA. The Project's potential environmental impacts related to the conversion of agricultural land are discussed under Thresholds 1 and 5 and would be less than significant with mitigation incorporated.

Mitigation Measures

No mitigation is required.

Threshold 3:	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

Impact AG-3 THE PROJECT WOULD NOT INVOLVE OTHER CHANGES IN THE EXISTING ENVIRONMENT, WHICH DUE TO THEIR LOCATION OR NATURE, COULD RESULT IN CONVERSION OF FARMLAND TO NON-AGRICULTURAL USE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The Project would not lead to changes in the existing environment that could cause the indirect conversion of off-site Farmland to non-agricultural use. The Project would be constructed within the boundaries of the site parcels, which would separate the proposed Project from off-site land uses. The Project would not include driveways accessing off-site areas or construction of new roadways through adjacent properties, nor would the Project induce indirect growth in the vicinity of the Project site, such as housing or commercial uses, that would preclude agricultural uses in off-site Farmlands. Furthermore, the Project would make no other changes to in the existing environment that would affect the defining characteristics of off-site Farmland, such as land use, soil quality, or water availability. Therefore, the Project would not involve changes in the existing environment that could result in the conversion of Farmland to a non-agricultural use. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Threshold 4:	Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres.

Impact AG-4 THE PROJECT WOULD NOT RESULT IN THE CANCELLATION OF AN OPEN SPACE CONTRACT TO ANY OF THE PROPOSED LAND CONVERSION. NO IMPACT WOULD OCCUR.

The Project site is not under an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code. No impact would occur as a result of the Project.

Mitigation Measures

No mitigation is required.

Threshold 5:	Causes conversion of significant agricultural lands, as defined by the California Agricultural Land Evaluation and Site Assessment (LESA) Model (1997).

Impact AG-5 THE PROJECT SITE HAS A TOTAL LESA PROJECT SCORE OF 77.25, WITH A LE SCORE OF 34.75 AND A SA SCORE OF 43. AS SUCH, THE SITE IS CONSIDERED A SIGNIFICANT AGRICULTURE RESOURCE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The LE score is determined by the Land Capability Classification (LCC) and the Storie Index. The LCC demonstrates the suitability of soils for most kinds of field crops. The Storie Index expresses numerically the relative degree of suitability, or value, of a soil for general intensive agriculture. For the LESA evaluation, all Project soils are listed with their respective acreage. The LCC and Storie Index for each soil type is applied, and a raw score is derived for each, which when totaled equals 50 percent of the total LESA score. The raw Land Evaluation (LE) score for the Jasmine Solar site received a LCC score of 60 and a Storie Index score of 79 (see Appendix C for calculations.) The combined weighted LE score of 34.75 out of a potential score of 50 indicates medium suitability of onsite soils for a range of agricultural activities.

The SA score, comprised of four measures (Project size, water resources, surrounding agricultural land, and surrounding protected resource land), totaled 43 out of 50 possible points. Project size, which recognizes the role scale plays in agricultural productivity, received a rating of 15 out of 15 based on the size of the site. The water resource rating was derived by dividing the site into areas based on water availability. Irrigation onsite consists of metered district water. As such, high water resource availability factored into the maximum score of 15 points.

Land uses for one quarter of a mile around the site, known as the Zone of Influence (ZOI), were assessed using the Department of Conservation interactive GIS map (Department of Conservation 2016). ZOI land uses include grazing, urban, and farmland areas. A high percentage of agricultural production occurs in the ZOI area. As such, a raw LESA score of 12 was generated out of a potential weighted score of 15.

This same process was used to determine surrounding protected resource land. A score of 2.5 out of a potential weighted score of 5 was assessed for this section of the LESA Model, indicating that the ZOI moderately contains surrounding protected resource land.

Evaluation of the Project resulted in a total LESA Project score of 77.25, with a LE score of 34.75 and a SA score of 43. Based on these results and using the LESA Model, the Project site is considered a significant agricultural resource because the LE sub-score and SA sub-score is greater than 20 points. Therefore, the Project would result in conversion of significant agricultural lands.

Mitigation Measures

Mitigation measure AG-1 would be required to reduce potential impacts related to the conversion of significant agricultural lands. The replacement land in Kern County of equal size to the Project site would help alleviate productive farmland loss by preserving land available for farming crops and regain economic loss of crops in Kern County.

Significance After Mitigation

Impacts would be less than significant with mitigation.

4 Conclusions and Mitigation Measures

The Project would convert approximately 490 acres of Farmland to a solar facility, which would result in a potentially significant impact. The County considers the site to be productive farmland that requires mitigation for the loss of farmland at a ratio of 1 to 1 project in Kern County. In addition to the standard replacement land, as a policy determination by the Kern County Board of Supervisors, the Project proponent shall implement one of the following options:

- Replacement land shall be acquired at a ratio of up to 1.5 to 1.
- Project shall fund, at an equivalent amount, a program that benefits the long term stability of agricultural production in Kern County. Examples include, but not limited to the Shafter Cotton Research Station, local FFA or 4-H organizations or agricultural pest management programs.

As discussed in the setting, the Department of Conservation has recorded the conversion of over 1.5 million acres of agricultural land in California to nonagricultural purposes since 1984. The Farmland converted by the proposed Project would represent less than 0.1 percent of the farmland in Kern County in 2017, though has the potential to result in a significant cumulative impact. However, the Project would be required to mitigate the loss of farmland at a ratio of 1 to 1. The replacement land in Kern County of equal size to the Project site would help alleviate productive farmland loss by preserving land available for farming crops and regain economic loss of crops in Kern County. Therefore, with mitigation, the Project's contribution to the cumulative impact would be less than significant.

5 References

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Appendix A

Jasmine Solar Project AcreValue Report

4 fields, 507 acres in Kern County, CA

AVG ACREVALUE

N/A

COUNTY AVG

$16,402

AVG NCCPI

11.3

COUNTY AVG

10.6



ECONOMIC ATTRIBUTES

Kern County is a high tax county.
This land is in a low livestock demand area.

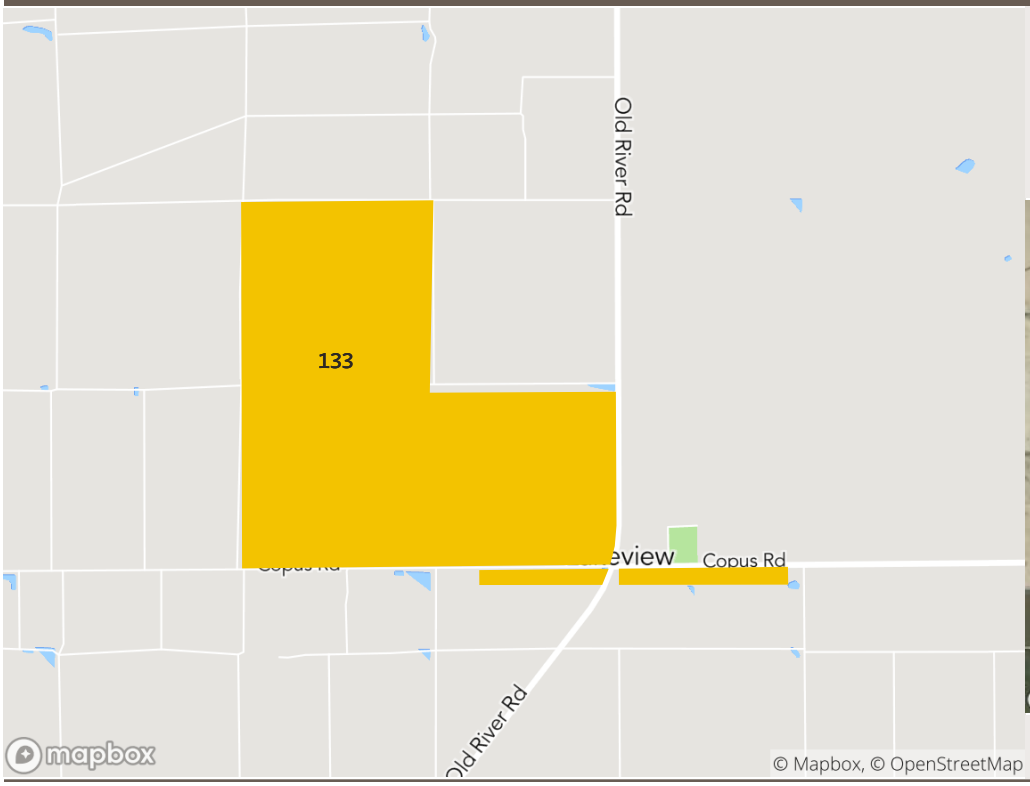
PHYSICAL ATTRIBUTES

Annual Precipitation: 6.31 inches
Annual GDD: 5531

	FIELD	ACRES	SLOPE	2019 CROPS	AVG NCCPI	AVG ACREVALUE ($/AC)
1		483.75	0.69%	62% Alfalfa, 35% Fallow, 3% Other, 0% Winter Wheat, 0% Double Crop	11.3	$14,573
2		9.32	0.67%	55% Alfalfa, 22% Fallow, 14% Non-Cropland, 9% Developed, 0% Other	11.3	N/A
3		7.25	0.56%	40% Fallow, 19% Developed, 18% Alfalfa, 15% Non-Cropland, 5% Crop Undetermined, 4% Other, 0% Almonds	11.3	N/A
4		6.46	0.69%	42% Fallow, 32% Alfalfa, 9% Developed, 7% Almonds, 6% Crop Undetermined, 4% Other	11.3	N/A
		506.78	**0.69%**		**11.3**	**N/A**

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Land prices are estimates of valuation and not certified appraised values.

4 fields, 507 acres in Kern County, CA



AVG NCCPI **11.3**

COUNTY AVG **10.6**



QUALITY 6 — 15

Source: NRCS Soil Survey

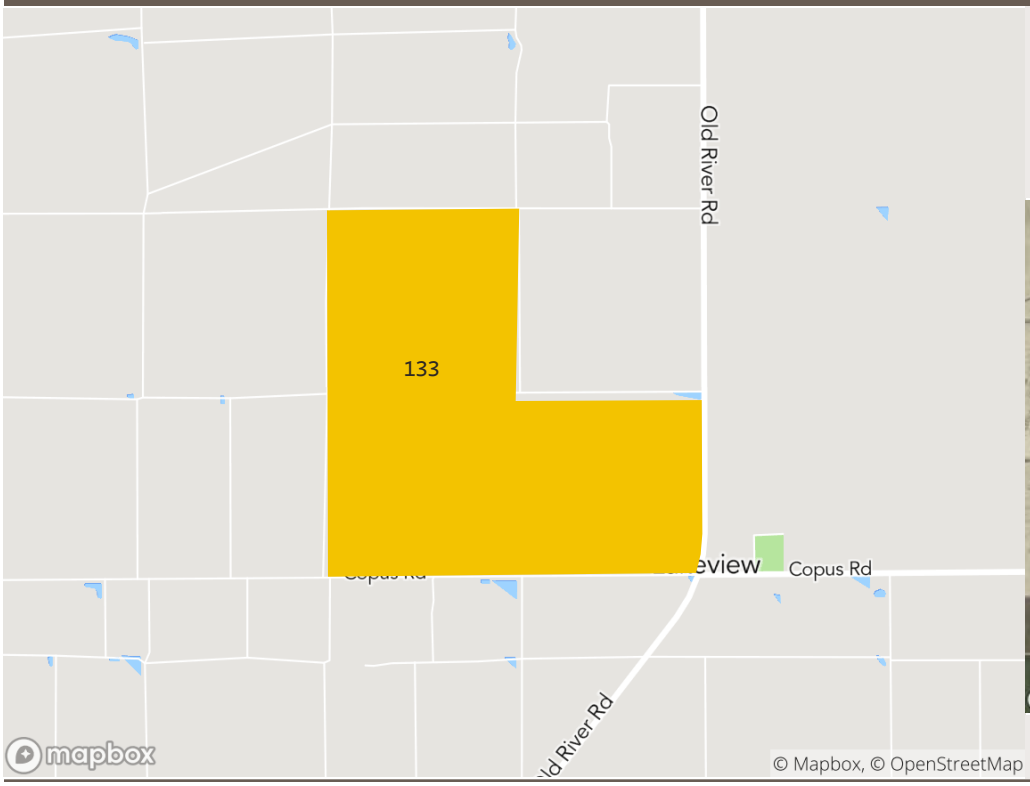
All fields

507 ac

SOIL CODE	SOIL DESCRIPTION	ACRES	PERCENTAGE OF FIELD	SOIL CLASS	NCCPI
133	Calflax loam, 0 to 1 percent slopes	506.78	100.0%	7	11.3
		506.78			**11.3**

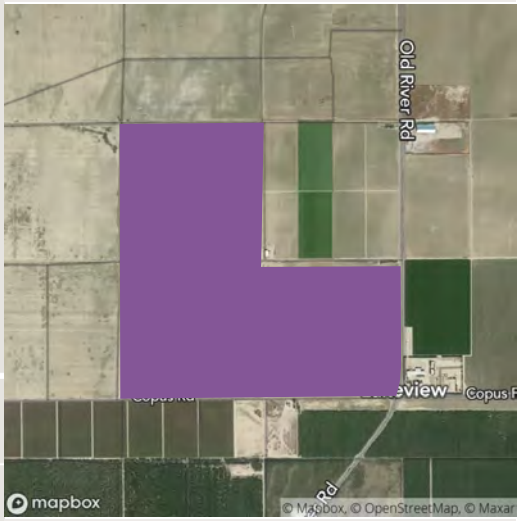
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4 fields, 507 acres in Kern County, CA



AVG NCCPI **11.3**

COUNTY AVG 10.6



QUALITY 6 — 15

Source: NRCS Soil Survey

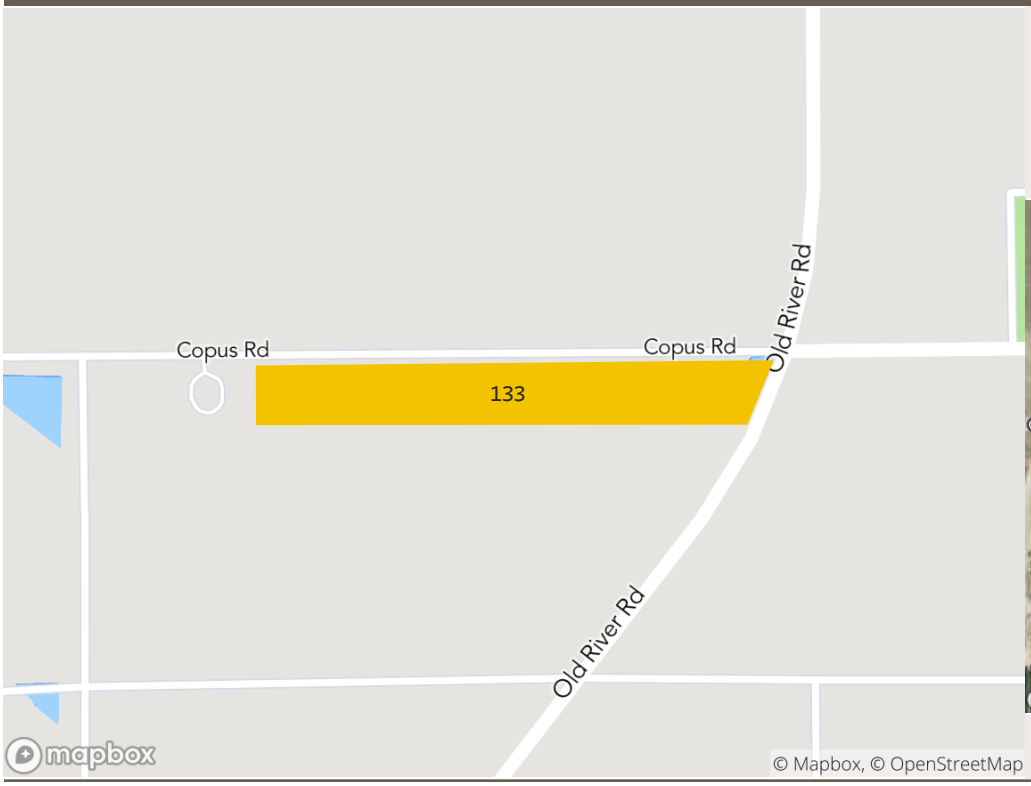
Field 1

484 ac

SOIL CODE	SOIL DESCRIPTION	ACRES	PERCENTAGE OF FIELD	SOIL CLASS	NCCPI
133	Calflax loam, 0 to 1 percent slopes	483.75	100.0%	7	11.3
		483.75			**11.3**

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4 fields, 507 acres in Kern County, CA



AVG NCCPI **11.3**

COUNTY AVG 10.6



QUALITY 6 — 15

Source: NRCS Soil Survey

Field 2

9 ac

	SOIL CODE	SOIL DESCRIPTION	ACRES	PERCENTAGE OF FIELD	SOIL CLASS	NCCPI
■	133	Calflax loam, 0 to 1 percent slopes	9.32	100.0%	7	11.3
			9.32			**11.3**

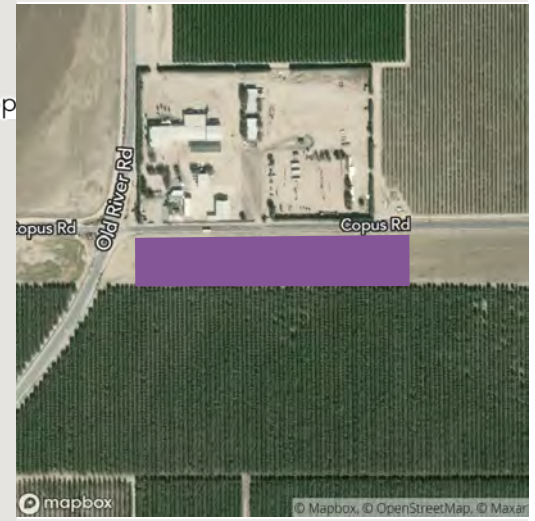
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4 fields, 507 acres in Kern County, CA



AVG NCCPI **11.3**

COUNTY AVG 10.6



QUALITY 6 — 15

Source: NRCS Soil Survey

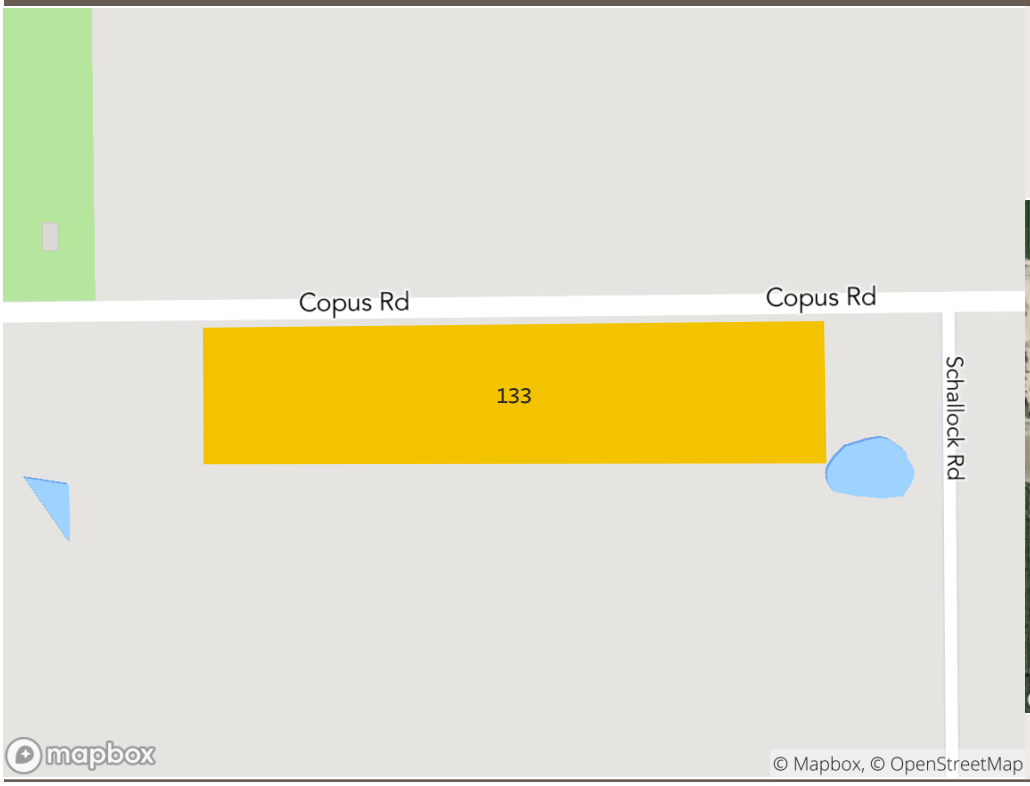
Field 3

7 ac

	SOIL CODE	SOIL DESCRIPTION	ACRES	PERCENTAGE OF FIELD	SOIL CLASS	NCCPI
■	133	Calflax loam, 0 to 1 percent slopes	7.25	100.0%	7	11.3
			7.25			**11.3**

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4 fields, 507 acres in Kern County, CA



AVG NCCPI **11.3**

COUNTY AVG 10.6



QUALITY 6 — 15

Source: NRCS Soil Survey

Field 4

6 ac

	SOIL CODE	SOIL DESCRIPTION	ACRES	PERCENTAGE OF FIELD	SOIL CLASS	NCCPI
■	133	Calflax loam, 0 to 1 percent slopes	6.46	100.0%	7	11.3
			6.46			**11.3**

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4 fields, 507 acres in Kern County, CA



All fields

507 ac

	2019	2018	2017	2016	2015
Alfalfa	60.4%	44.6%	61.0%	8.7%	22.8%
Fallow	35.0%	48.2%	32.1%	40.4%	71.5%
Double Crop	–	–	–	19.7%	–
Winter Wheat	0.1%	–	–	18.2%	–
Other	4.4%	7.1%	6.9%	12.9%	5.7%



Field 1

484 ac

	2019	2018	2017	2016	2015
Alfalfa	61.5%	46.7%	62.5%	9.1%	23.8%
Fallow	35.1%	49.4%	33.6%	40.4%	72.2%
Double Crop	–	–	–	20.6%	–
Winter Wheat	0.1%	–	–	19.1%	–
Other	3.2%	3.9%	3.9%	10.8%	4.0%

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4 fields, 507 acres in Kern County, CA



Field 2

9 ac

	2019	2018	2017	2016	2015
Alfalfa	54.9%	–	56.0%	1.6%	–
Fallow	21.9%	55.4%	–	54.6%	55.4%
Non-Cropland	13.9%	32.8%	34.8%	32.4%	34.8%
Developed	9.1%	9.1%	9.1%	8.0%	9.1%
Other	0.2%	2.7%	–	3.4%	0.6%



Field 3

7 ac

	2019	2018	2017	2016	2015
Fallow	39.7%	0.8%	–	34.6%	55.3%
Developed	19.0%	27.9%	26.2%	15.3%	24.9%
Crop Undetermined	4.7%	59.7%	–	–	–
Non-Cropland	14.8%	9.0%	10.8%	9.0%	12.1%
Alfalfa	17.7%	1.5%	15.7%	–	7.5%
Pistachios	–	–	43.8%	10.7%	–
Almonds	–	1.1%	1.6%	17.2%	–
Triticale	–	–	2.0%	12.7%	–
Other	4.1%	–	–	0.5%	0.3%

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4 fields, 507 acres in Kern County, CA



Field 4

6 ac

	2019	2018	2017	2016	2015
Fallow	41.6%	5.9%	3.6%	30.0%	59.6%
Alfalfa	32.1%	1.6%	5.3%	–	1.6%
Crop Undetermined	6.0%	50.4%	–	–	–
Developed	9.4%	18.8%	15.1%	18.8%	21.8%
Pistachios	–	–	55.6%	31.6%	–
Non-Cropland	–	16.1%	19.9%	16.1%	13.1%
Almonds	7.2%	7.2%	0.4%	3.4%	0.4%
Other	3.6%	–	–	–	3.4%

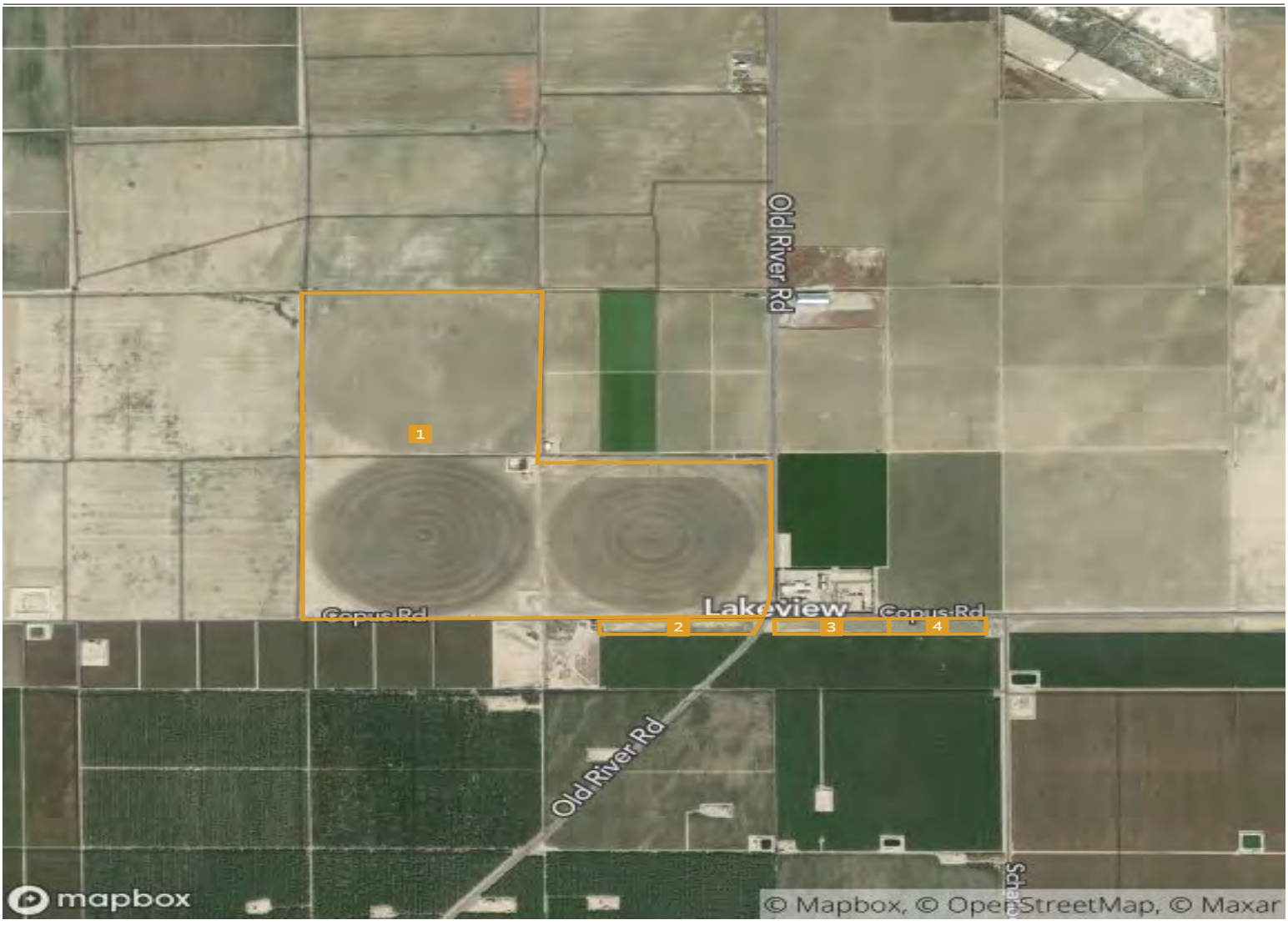
Source: NASS Cropland Data Layer

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4 fields, 507 acres in Kern County, CA

Kern County, CA

	FIELD	ACRES	LOCATION	OWNER (LAST UPDATED)
1		483.75	32S 26E – 36, 32S 27E – 31 APN: 29513078	ECHEVERRIA, F & I (11/09/2020)
2		9.32	12N 21W – 27 APN: 29513078	ECHEVERRIA, F & I (11/09/2020)
3		7.25	12N 21W – 27 APN: 29513036	WILLOW AVENUE INVESTMENTS LLC (11/09/2020)
4		6.46	12N 21W – 27 APN: 29513080	WILLOW AVENUE INVESTMENTS LLC (11/09/2020)
		506.78		



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Appendix B

Soil Information

Kern County, California, Southwest Part

133—Calflax loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hncw
Elevation: 290 to 490 feet
Mean annual precipitation: 5 to 7 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Calflax and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Calflax

Setting

Landform: Fan skirts
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed mineralogoy rock

Typical profile

Ap - 0 to 6 inches: loam
Bw - 6 to 21 inches: stratified clay loam to silty clay loam
C1 - 21 to 30 inches: stratified clay loam to silty clay loam
C2 - 30 to 37 inches: stratified clay loam to silty clay loam
C3 - 37 to 46 inches: sandy loam
C4 - 46 to 52 inches: loam
C5 - 52 to 60 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0

Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Bakersfield

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Hydric soil rating: Yes

Posochanet

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Hydric soil rating: No

Vineland

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Kern County, California, Southwest Part
Survey Area Data: Version 11, May 29, 2020

Appendix C

LESA Model Calculation

NOTES

Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	*<1> 60*	0.25	15
Storie Index	*<2> 79*	0.25	19.75
LE Subtotal		***0.50***	34.75
SA Factors			
Project Size	*<3> 100*	0.15	15
Water Resource Availability	*<4>100*	0.15	15
Surrounding Agricultural Land	*<5>70*	0.15	10.5
Protected Resource Land	*<6>50*	0.05	2.5
SA Subtotal		***0.50***	43
		Final LESA Score	77.75

For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.

Appendix C

Air Quality and Greenhouse Gas Study



Jasmine Solar Project

Air Quality and Greenhouse Gas Study

prepared for

SF Jasmine, LLC
50 California Street, Suite 820
San Francisco, California 94111

prepared by

Rincon Consultants, Inc.
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Ventura, California 93003

August 2022

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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Appendix B Health Risk Assessment Data

1 Project Description

1.1 Introduction

This study analyzes the air quality, greenhouse gas (GHG) emissions, and potential health risk impacts of the proposed Jasmine Solar Project (Project) in unincorporated Kern County, California. Rincon Consultants, Inc. (Rincon) prepared this study for SF Jasmine, LLC for use in support of environmental documentation being prepared for the Project pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the Project's air quality, GHG, and health risk impacts related to both temporary construction activity and long-term operation of the Project.

1.2 Project Location

The Project site is located in San Joaquin Valley in southwestern unincorporated Kern County at the intersection of Old River Road and Copus Road. The site is approximately four miles west of Interstate 5 and approximately three miles north of State Route 166. The Project site is approximately 15 miles east of Maricopa. The surrounding area consists of actively farmed agricultural land. Unpaved roads bound the Project site to the north and west. Old River Road is along the eastern boundary of the site, while Copus Road is adjacent to the Project site's southern boundary. The Project site would be located on properties identified by five Assessor's Parcel Numbers (APNs), two of which are pending a parcel split: APN 295-130-78; APN 295-130-36 (parcel split pending); and APN 295-130-80 (parcel split pending). The total area of the site is approximately 520 acres. Approximately 492 acres of the Project site would be developed and occupied by the proposed 70 MW solar facility. The existing Pacific Gas and Electric (PG&E) Lakeview Substation is located approximately 0.5 mile east of the main facility site and adjacent to the generation tie lie (gen-tie) corridor. Figure 1 shows the Project site's regional location, and Figure 2 show an aerial view of the site and its surrounding area.

1.3 Project Description

The Project would involve the construction of a 70-megawatt (MW) utility-scale solar facility on approximately 492 acres of the 520-acre site. The solar facility would consist of Photovoltaic (PV) modules and trackers, inverters and medium voltage transformers, Direct Current (DC) collection, on-site substation, battery storage, telecommunications, meteorological data collection, lighting signage, access roads, and gen-tie. The Project will interconnect at PG&E's Lakeview Substation via a 0.6-mile gen-tie line that will enter through the northwest corner of the substation property. The permanent disturbance acreage associated with development of the solar facility and associated infrastructure (i.e., Project site) would be less than the gross acreage of the Project area. Access to the site would be off of Copus Road and Old River Road. There would be approximately 14-acres of access and maintenance roads constructed on-site. Additional details about elements of the solar facility are provided in more detail below.

Figure 1 Regional Location

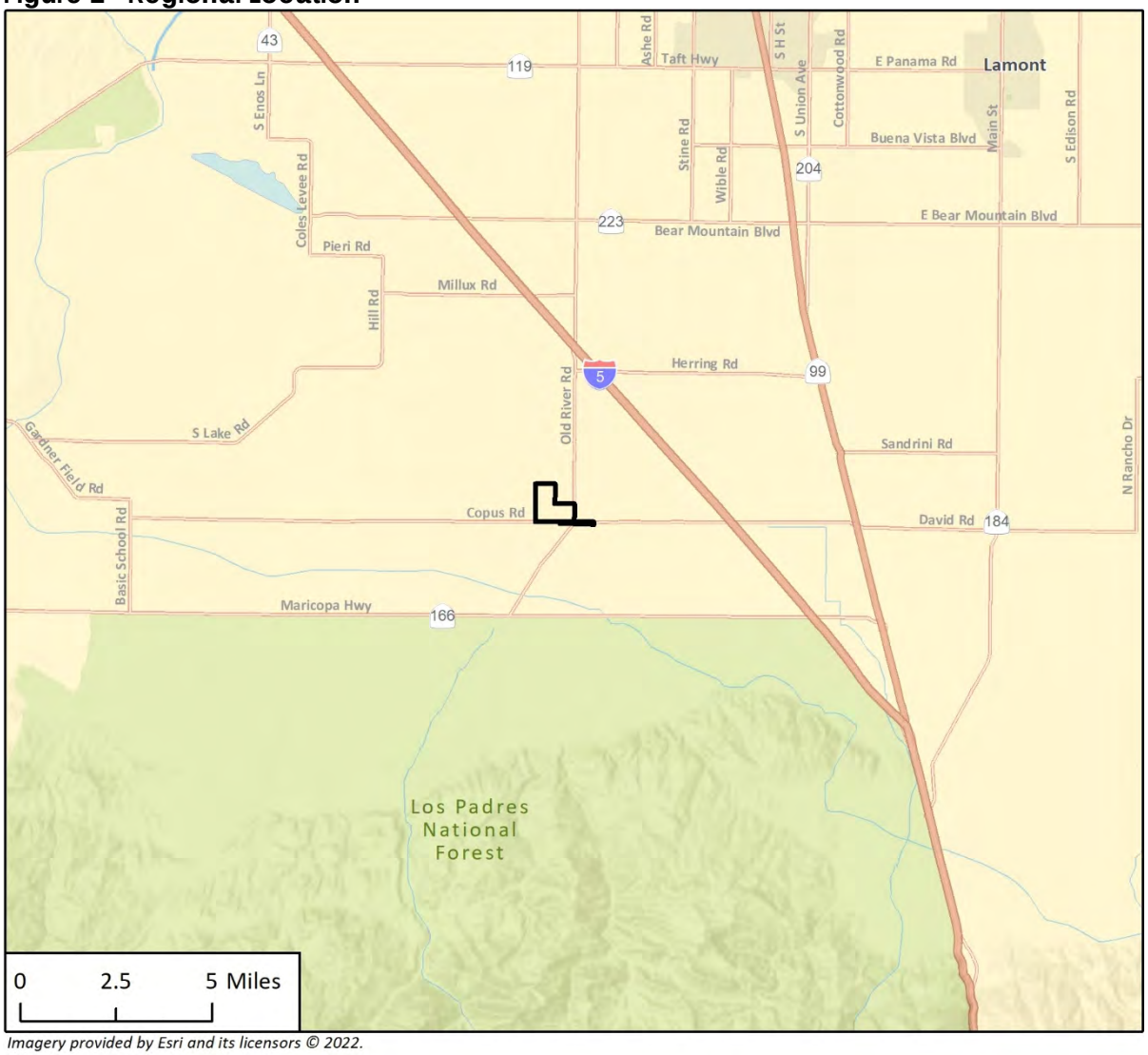
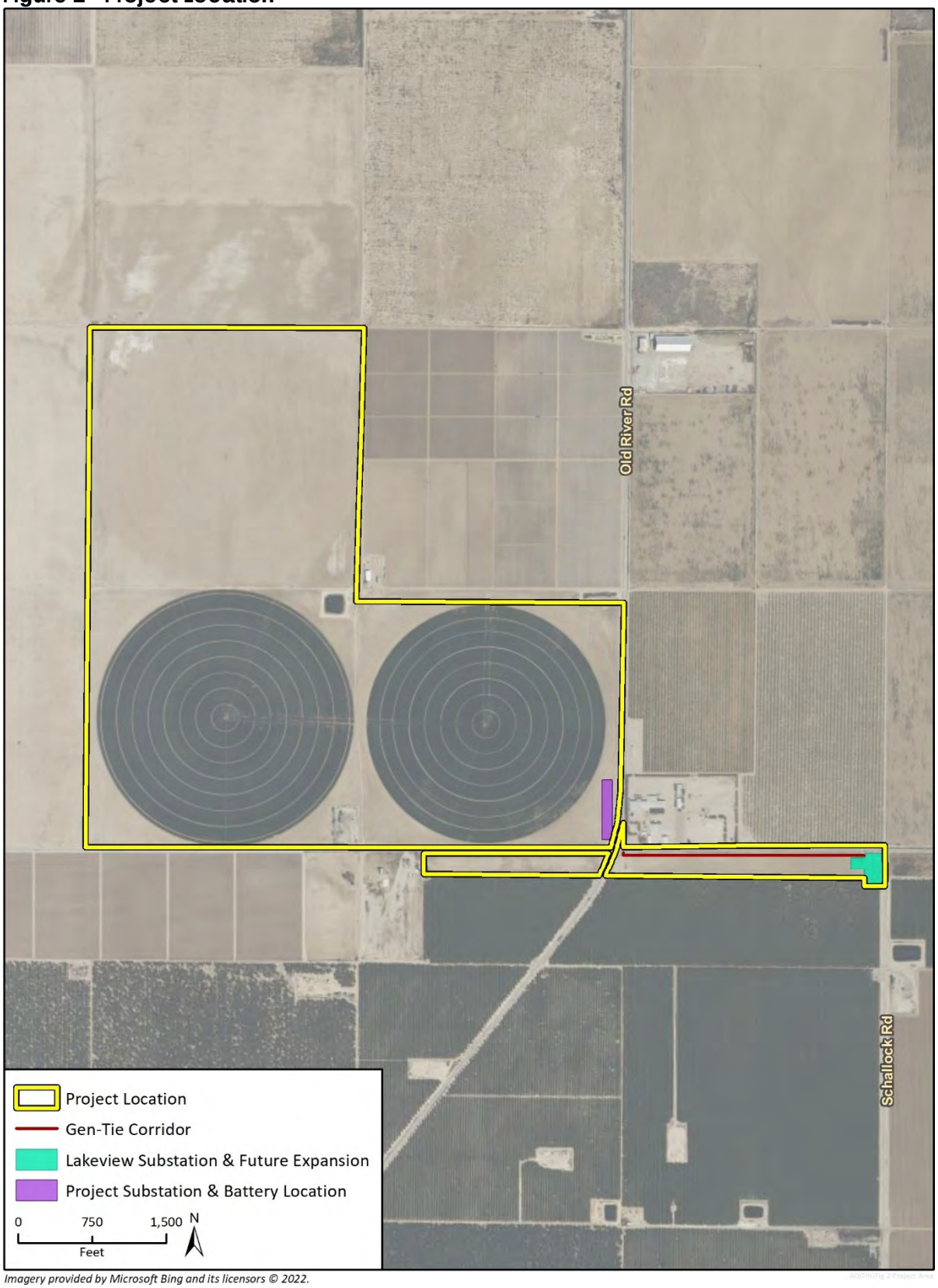


Figure 2 Project Location



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PV Module Configuration

The solar facility would utilize PV modules and trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The panels would be comprised of blue or black glass, with a plastic binding material and frame to provide structural rigidity.. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules would be certified to comply with industry standard quality testing. Panels would be electrically connected. The Project would be designed in accordance with local and state codes and regulations.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS. The panels would be organized in rows in a uniform grid pattern, with each row separated by between 10 to 20 feet (from post to post).

Inverters and Medium Voltage Transformers

Each PCS would be comprised of inverters, transformers, and other electrical equipment comprise. The footprint of each PCS, which is generally mounted on a concrete pad or piles, would be approximately 12 feet by 30 feet. The proposed Project would require approximately 40 PCS, depending on final design details. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5-kV). The Project would use Power Electronic HEM Central inverters or equivalent and one medium voltage transformers per inverter. Each inverter and transformer would be installed as per manufacturer's requirements.

Electrical Collection and Distribution System

The DC output of multiple rows of PV modules connected in series would be collected through one or more combiner boxes and associated electrical wiring located throughout the Project site. The power would be delivered via an underground cable network to the inverters in the electrical equipment enclosures at the PCS, described above. Multiple transformers electrically connected in series would deliver AC power to the substation located on-site.

Project Substation

The Project Substation is proposed to be in the southeast corner of APN 295-130-78. The Project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. In order to allow for interconnection with the proposed project, the Project Substation will be expanded to accommodate for additional electrical equipment, breaker, and control switching equipment. The Project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. The substation would also contain a control house building . The Project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

The Project Substation would be required to have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility

monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Lakeview Substation

The existing Lakeview Substation, operated by PG&E, would require modifications to accommodate a new 70 kV bus terminal. The new bus terminal will connect the proposed customer-owned photovoltaic solar Project to the existing transmission system via new generation tie-line. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment would require the expansion of the existing Lakeview Substation, including the filling of the agricultural pond directly west of the substation.

Telecommunications

The Project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line, installed above and/or below ground, attached to either existing utility lines located outside of the Project or the new gen-tie. The Project's telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the point of connection to existing telecommunications infrastructure and the Lakeview Substation. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection to the existing telecommunication facilities would be within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) coming into the substations as part of the standard substation design criteria. Telecommunication lines may also be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The site will also have internal telecommunications expected to be provided by the local provider in the area.

Meteorological Data Collection System

The Project would require up to four meteorological data collection systems. The systems, which would be mounted at various locations throughout the proposed solar facility, would include a variety of instruments to collect meteorological data. Meteorological data would be collected at approximately 15 feet above the ground (the maximum height of the solar panels).

Battery Storage Component

The proposed Project may include the installation of a battery storage component. The battery system would consist of commercially available lithium ion batteries housed in enclosures. The enclosures would be approximately 8 feet wide by 40 feet long by 9.5 feet high (2.4 meters wide by 12 meters long by 2.9 meters high). The battery storage component would have a footprint of approximately 1 acre and would be immediately adjacent to the Project's Substation. Site preparation required for the battery storage enclosures requires leveling the area for a flat concrete foundation.

Lighting and Signage

Low-level lighting may be installed at the entry gates, on-site substation, inverter pads, and operation and maintenance (O&M) Building for ongoing maintenance and security. Lighting outside of the substation would be downward facing, shielded or otherwise modified to minimize emission of light or glare beyond the property line, or upward into the sky.

Signage installed on the fence in the vicinity of the main entry gates would identify the Project owner, operator, and emergency contacts and provide safety and security information. Small-scale signage would be posted at the main entry gates and intermittently along the perimeter fencing on exterior parcel boundaries, to indicate "No Trespassing" and "Private Property" for security and safety purposes. All signage would conform to Kern County signage requirements.

Generation-Tie Line

The 70 kV gen-tie would interconnect the Project's substation to the existing PG&E Lakeview Substation. The gen-tie is proposed to extend to the west from the Project Substation for approximately 0.60 miles. The gen-tie right-of way would be from 25- to 75-feet-wide. Approximately 25 new poles would be installed to accommodate the gen-tie. The new poles would be constructed of either steel or wood at a maximum of 125 feet tall.

Access Roads

The proposed Facility would be primarily accessed off Copus Rd and Old River Rd adjacent to the Project site and gen-tie corridor. Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

1.4 Construction Activities

Construction of all Project components would occur over approximately 16 months, initiating in January 2023 with the facility placed into service by end of 2023 and final close out items completed in 2024. Construction of the Project would include the following types of activities:[1]

- Site preparation & Grading
- Tracker Foundations (Piles)
- Underground Cabling
- Mechanical Installation
- Electrical Installation
- PG&E Substation Upgrades

There would be six total phases with Phases 1 through 5 occurring over 12 months and Phase 6 taking approximately 16 months. Primary construction activities would take place during the first 12 months of construction; upgrades to the PG&E Substation would overlap with the other phases and are expected to take up to 16 months. Table 1 shows the assumed construction schedule, number of workdays, and overlapping phases that were used in the following analysis.

[1] The anticipated construction schedule and types of construction activities are subject to changing. However, for the purpose of this analysis, these phases are assumed to occur and overlap.

Table 1 Overall Project Construction Schedule

Scenario	Workdays	Months 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase 1: Site Preparation & Grading	60																
Phase 2: Tracker Foundations (Piles)	103																
Phase 3: Underground Cabling	86																
Phase 4: Mechanical Installation	103																
Phase 5: Electrical Installation	129																
Phase 6: PG&E Substation Upgrades	336																

Note: Majority of the construction would occur in a 12-month period (i.e., Phases 1 through 5). The 16-month schedule accommodates the PG&E substation modification and power line construction.

Construction traffic would access the Project site locally from Copus and Old River Road. It is estimated that the peak construction workforce would be 550 workers. On-road traffic would consist of employee and vendor vehicle trips. The number of vehicle trips would vary by month depending on the construction activities. The construction workforce would typically work five days per week at eight hour per day. Some Saturday, Sunday, evening, and night work may also be required due to the scheduling of system outages and construction schedules. Earthmoving activities are expected to be limited to the construction of access roads, O&M building, substation, energy storage systems, and control rooms.

Truck Deliveries

Materials and supplies would be delivered to the Project site by truck. Truck deliveries would normally occur during daylight hours. However, there could be offloading and/or transporting of materials to the Project site on weekends and during evening hours.

Water

The proposed Project would obtain water for construction from either existing wells or purchase water from a local provider. The water would be trucked and stored on-site to be primarily used for dust suppression, soil compaction, concrete hydration and other miscellaneous activities requiring non-potable water during construction. The Project will require an estimated 150 acre-feet of water for construction activities and 0.5 acre-feet of water per year during operations. Potable water for drinking and similar needs during construction would be trucked in from off-site (e.g., bottled water).

Dust Control

The Project would implement standard fugitive dust control measures and incorporate those measures into their construction contracts for all projects. Those dust control measures include:

- Watering active construction sites with the frequency of watering based on the type of operation, soil, and wind exposure.
- Stabilizing dust emissions at disturbed areas, including storage piles that are not actively utilized for construction purposes, using water or other approved substances.
- Prohibiting grading activities during periods of high wind (over 20 miles per hour).
- Limiting vehicle speed on-site to minimize dust emissions on unpaved driveways (15 miles per hour).
- Covering trucks hauling dirt, sand, or loose materials.
- Posting a publicly visible sign with the telephone number and person to contact regarding dust complaints. The contact would respond and take corrective actions within 48 hours. The phone number of the San Joaquin Valley Air Pollution Control District must also be visible to ensure compliance with rules regarding nuisance and fugitive dust emissions.

Diesel-Powered Equipment

In addition to standard dust control features, the Project would implement standard measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contracts for the proposed solar facility.

1.5 Operational Activities

Once completed, the Project would generally be limited to the following maintenance activities:

- Cleaning PV panels
- Monitoring electricity generation
- Providing site security
- Maintaining the facility: replacing or repairing inverters, wiring, and PV modules
- Erosion control maintenance
- Restoration of vegetative cover and vegetation maintenance

The Project would operate continuously, seven days a week, until the anticipated repowering or decommissioning in 35 years. One employee would be assigned for operational maintenance and oversight. Personnel would largely work in the O&M building monitoring the system's performance and performing system production forecasting. Personnel would access on-site equipment for operational adjustments or minor repairs. Regular access throughout the day and night is expected. Personnel would use light to medium duty trucks and all-terrain vehicles for traversing the site along fire access roads, including drainage crossings. Security monitoring would occur on-site 24 hours a day. The facility would generate electricity during normal daylight hours when the solar energy is available. Maintenance activities may occur seven days a week, 24 hours a day to ensure PV panel output when solar energy is available. The Project would require an estimated 0.5 acre-feet of water per year during operations.

1.6 Decommissioning Activities

The Project would be decommissioned after 35 years and the site would be reverted to undeveloped land. The decommissioning and restoration process would involve removing aboveground and belowground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control Best Management Practices (BMPs) would be used during the decommissioning phase. Solar panels would be removed and placed in secure transport crates or container boxes for storage, and transported to another solar facility for reuse, material recycling, or disposal. Electrical equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site. Electrical equipment, transformers, and switching gear on the inverter and interconnection transformer pads and all above ground electrical wiring would be removed and recycled or disposed. All other aboveground site infrastructure—including fences, awnings, and the concrete pads that supported the inverters, and related equipment—would be removed. The fence and gate would be removed per a fencing plan and may include the replacement of some perimeter array fencing with fencing to facilitate livestock management. Removed materials would be recycled to the greatest extent possible. All debris would be removed from the area.

2 Air Quality

2.1 Environmental Setting

Local Climate and Meteorology

The Project site is located in the unincorporated area of western Kern County, which is part of the San Joaquin Valley Air Basin (SJVAB). The SJVAB encompasses the southern half of the California Central Valley and is comprised of eight counties: San Joaquin, Stanislaus, Fresno, Merced, Madera, Kings, Tulare, and western Kern County. The Air Basin is approximately 250 miles long and 35 miles in width (on average) and is bordered by the Sierra Nevada Mountains in the east (8,000 to 14,500 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains in the south (6,000 to 8,000 feet in elevation).

The overall climate in the SJVAB is warm and semi-arid. The San Joaquin Valley is in a Mediterranean Climate Zone. Mediterranean Climate Zones occur on the west coast of continents at 30 to 40 degrees latitude and are influenced by a subtropical high-pressure area most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in the winter. There is only one wet season during the year and 90 percent of the precipitation falls during October through April. Snow in the valley is infrequent and thunderstorms seldom occur. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit (°F) in the valley. The SJVAB's topography has a dominating effect on wind patterns. Winds tend to blow somewhat parallel to the valley and mountain range orientation. In spring and early summer, thermal low-pressure systems develop over the interior basins east of the Sierra Nevada mountain range, and the Pacific High (a high-pressure system that develops over the central Pacific Ocean near the Hawaiian Islands) moves northward. These developments and the topography produce the high incidence of relatively strong northwesterly winds in the spring and early summer.

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the San Joaquin Valley. A temperature inversion can act like alid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet). Winter-time high-pressure events can often last many weeks with surface temperatures lowering into the 30°F. During these events, fog can be present, and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet (SJVAPCD 2015a).

Air Pollutants of Concern

The United States Environmental Protection Agency (USEPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare standards. Criteria pollutants that are a concern in the Air Basin are described below.

Ozone

Ozone (O_3) is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and volatile organic compounds (VOC[2]). NO_X is formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. Because O_3 requires sunlight to form, it usually occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions (USEPA 2020a). Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a byproduct of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Elevated levels of NO_2 can also cause respiratory irritation, impaired pulmonary function, and bronchitis (USEPA 2021a). Nitrogen dioxide absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. It can also contribute to the formation of ozone/smog and acid rain.

Sulfur Dioxide

SO_2 is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X). In humid atmospheres, SO_2 can also form sulfuric acid mist, which can eventually react to produce sulfate particulates that can inhibit visibility. Combustion of high sulfur-content fuels is the major source, while chemical plants, sulfur recovery plants, and metal processing are minor contributors. At sufficiently high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when in conjunction with particulates, SO_2 appears to do still greater harm by injuring lung tissues. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. Sulfur dioxide causes respiratory irritation, including wheezing, shortness of breath, and coughing (USEPA 2021a). Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease. Sulfur oxides, in combination with moisture and oxygen, can yellow leaves on plants, dissolve marble, and eat away iron and steel.

Carbon Monoxide

Carbon monoxide is a local pollutant that is found in high concentrations near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. The health effects of CO are related to its affinity for hemoglobin in the blood. At high

[2] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). The SJVAPCD uses the term ROG to denote organic precursors.

concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, nausea, reduced lung capacity, and impaired mental abilities (USEPA 2021a).

Particulate Matter

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (small particulate matter that measures no more than 10 microns in diameter) and $PM_{2.5}$ (fine particulate that measures no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the PM_{10} and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer $PM_{2.5}$ particulates are generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. Elevated levels of PM_{10} can cause respiratory irritation, reduced lung function, aggravation of cardiovascular disease, and cancer (USEPA 2021a). $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. Elevated levels of $PM_{2.5}$ can cause respiratory stress and decreased lung function and increase the risk of long-term disease (USEPA 2021a). More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Lead

Lead (Pb) is a metal found naturally in the environment, as well as in manufacturing products. Lead occurs in the atmosphere as particulate matter. The major sources of Pb emissions historically have been mobile and industrial sources. In the early 1970s, the USEPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The USEPA completed the ban prohibiting the use of leaded gasoline in highway vehicles in December 1995. As a result of the USEPA's regulatory efforts to remove lead from gasoline, atmospheric lead concentrations have declined substantially over the past several decades. The most dramatic reductions in lead emissions occurred prior to 1990 due to the removal of lead from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries in part due to national emissions standards for hazardous air pollutants (USEPA 2013). As a result of phasing out leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest level of Pb in the air is generally found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. Lead may cause a range of health effects, including anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases). Demolition of buildings containing lead-based paint is regulated by existing laws and regulations, including California Code of Regulations (CCR) Title 17, Division 1, Chapter 8, and Senate Bill 460, to reduce or eliminate the risk to nearby receptors.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. Assembly Bill 1807 (AB 1807) sets forth a procedure for the identification and control of TACs in California. The California Air Resources Board (CARB) defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may

pose a present or potential hazard to human health. Because no safe levels of TACs can be determined, there are no ambient air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Although construction activity is short-lived, it may increase TAC concentrations in the short term at nearby sensitive receptors. A common source of TAC emissions during construction activities is diesel particulate matter (DPM) due to the operation of diesel-powered equipment and heavy-duty trucks. Because DPM is the primary contaminant of concern for construction of the Project and would be the TAC emitted in the largest quantity, health risks were assessed as they relate to DPM exposure.

Diesel Particulate Matter

Diesel engine fuel combustion forms an important fraction of the particulate matter emission inventory, as particulates in diesel emissions are very small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens and carcinogens. The Office of Environmental Health Hazard Assessment (OEHHA) reviewed and evaluated the potential for diesel exhaust to affect human health, and the associated scientific uncertainties. Based on the available scientific evidence, it was determined that a level of DPM exposure has not been identified, below which no carcinogenic effects are anticipated. The Scientific Review Panel that approved the OEHHA report determined that, based on studies to date, 3×10^{-4} micrograms per cubic meter ($\mu g/m^3$) is a reasonable estimate of the unit risk for DPM. This means that a person exposed to a DPM concentration of 1 $\mu g/m^3$ continuously over the course of a lifetime has a 3 per 10,000 chance (or 300 in one million chance) of contracting cancer due to this exposure. In 2000, the statewide estimated average concentration of diesel PM was 1.26 $\mu g/m^3$ for indoor and outdoor ambient air. If DPM concentrations remained the same, about 380 excess cancers per one million population could be expected (CARB 2000). Therefore, these particulate emissions have been determined by CARB to be a TAC.

DPM emissions are estimated to be responsible for about 70 percent of the total ambient Statewide air toxics risk. DPM can also be responsible for elevated localized or near-source exposures ("hot-spots"). Depending on the activity and nearness to receptors, these potential risks are as high as 1,500 per million or more (CARB 2000). CARB staff have conducted risk characterization scenarios to determine the potential excess cancer risks involved when individuals are near various sources of diesel engine emissions, ranging from school buses to high volume freeways. The purpose of the risk characterization was to estimate, through air dispersion modeling, the cancer risk associated with typical diesel-fueled engine or vehicle activities based on modeled PM concentration at the point of maximum impact. The study included various sources of DPM emissions, including idling school buses, truck stops, low- and high-volume freeways, and other sources. High-volume freeways (20,000 or more trucks per day) were estimated to cause 800-1,700 per million potential excess cases of cancers, while low-volume freeways (2,000 or fewer trucks per day) were estimated to cause about 100-200 per million potential excess cases of cancers Statewide (CARB 2000).

Valley Fever

Valley Fever or coccidioidomycosis is caused locally by the microscopic fungus *Coccidioides immitis (C. immitis)*. The *Coccidioides* fungus resides in the soil in southwestern United States, northern Mexico, and parts of Central and South America. During drought years, the number of organisms competing with *C. immitis* decreases, and *the C. immitis* remains alive but dormant. When rain finally occurs, the fungal spores germinate and multiply more than usual because of fewer other competing organisms.

Later, the soil dries out in the summer and fall, and the fungi can become airborne and potentially infectious (Kirkland and Fierey 1996).

Infection occurs when the spores of the fungus become airborne and are inhaled. The fungal spores become airborne when contaminated soil is disturbed by human activities, such as construction and agricultural activities, and natural phenomena, such as windstorms, dust storms, and earthquakes. About 60 percent of infected persons have no symptoms. The remainder develop flu-like symptoms that can last for a month and tiredness that can sometimes last for longer than a few weeks. Common symptoms include fatigue, couth, chest pain, fever, rashes on upper body or legs, headaches, muscle aches, night sweats, and unexplained weight loss (California Department of Public Health 2021a). A small percentage of infected persons (<1 percent) can develop disseminated disease that spreads outside the lungs to the brain, bone, and skin. Without proper treatment, Valley Fever can lead to severe pneumonia, meningitis, and even death. Symptoms may appear between one to four weeks after exposure (Los Angeles County Health Department 2013). Both humans and animals can become infected with Valley Fever, but the infection is not contagious and cannot spread from one person or animal to another (California Department of Public Health 2021a).

Diagnosis of Valley Fever is conducted through a sample of blood, other body fluid, or biopsy of affected tissue. Valley Fever is treatable with anti-fungal medicines. Once recovered from the disease, the individual is protected against further infection. Persons at highest risk from exposure are those with compromised immune systems, such as those with human immunodeficiency virus (HIV) and those with chronic pulmonary disease. Farmers, construction workers, and others who engage in activities that disturb the soil are at highest risk for Valley Fever. Infants, pregnant women, diabetics, people of African, Asian, Latino, or Filipino descent, and the elderly may be at increased risk for disseminated disease. Historically, people at risk for infection are individuals not already immune to the disease and whose jobs involve extensive contact with soil dust, such as construction or agricultural workers and archeologists (Los Angeles County Health Department 2013). Most cases of Valley Fever (over 65 percent) are diagnosed in people living in the Central Valley and Central Coast regions (California department of Public Health 2021a).

There is no vaccine to prevent Valley Fever. However, the California Department of Public Health recommends the following practical tips to reduce exposure (2021a):

- Stay inside and keep windows and doors closed when it is windy outside and the air is dusty, especially during dust storms.
- Consider avoiding outdoor activities that involve close contact to dirt or dust, including yard work, gardening, and digging, especially if you are in one of the groups at higher risk for severe or disseminated Valley fever.
- Cover open dirt areas around your home with grass, plants, or other ground cover to help reduce dusty, open areas.
- While driving in these areas, keep car windows closed and use recirculating air, if available.
- Try to avoid dusty areas, like construction or excavation sites.
- If you cannot avoid these areas, or if you must be outdoors in dusty air, consider wearing an N95 respirator (a type of face mask) to help protect against breathing in dust that can cause Valley fever.

However, if in situations where digging dirt or stirring up dust will happen, then the following tips are recommended:

- Stay upwind of the area where dirt is being disturbed.
- Wet down soil before digging or disturbing dirt to reduce dust.
- Consider wearing an N95 respirator (mask).
- After returning indoors, change out of clothes if covered with dirt.
    - Be careful not to shake out clothing and breathe in the dust before washing. If someone else is washing your clothes, warn the person before they handle the clothes.

In 2020, approximately 2,825 cases were reported in Kern County in 2020 (California Department of Public Health 2021b). This is a decrease of 548 cases compared to 2019 (3,373 cases), but Kern County remains the county with the highest total number of cases in California. In 2019, the incident rate was 368 cases per 100,000 people (California Department of Public Health 2020).[3] Thus, the Project site is located in an area endemic to Valley fever with a high rate of exposure.

2.2 Regulatory Setting

Federal and State Criteria Air Pollutants

The federal and state governments have established ambient air quality standards for the protection of public health. The USEPA is the federal agency designated to administer air quality regulation, while the CARB is the state equivalent in the California Environmental Protection Agency (CalEPA). County-level Air Pollution Control Districts (APCD) provide local management of air quality. CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 14 air basins statewide.

The USEPA has set primary national ambient air quality standards (NAAQS) O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb. Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards. Table 2 lists the current federal and state standards for regulated pollutants.

The SJVAB currently is classified as nonattainment for the one-hour state O_3 standard as well as for the federal and state eight-hour O_3 standards. The SJVAB also is designated as nonattainment for the state annual arithmetic mean and national 24-hour $PM_{2.5}$ standards. Additionally, the SJVAB is classified as nonattainment for the state 24-hour and annual arithmetic mean PM_{10} standards. The SJVAB is unclassified or classified as attainment for all other pollutant standards (SJVAPCD 2021).

[3] The 2020 incident rate is not yet published.

Table 2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	0.030 ppm	–
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
PM_{25}	Annual	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

ppm = parts per million
µg/m^3 = micrograms per cubic meter
Source: Ambient Air Quality Standards (CARB 2016)

Regional

San Joaquin Valley Air Pollution Control District

The SJVAPCD is primarily responsible for regulating and enforcing rules and regulations related to air pollution within its jurisdictional boundaries. Applicable rules and polices are as follows:

- **Regulation VIII (Fugitive PM_{10} Prohibitions)** contains rules developed pursuant to USEPA guidance for "serious" PM_{10} nonattainment areas. Rules included under this regulation limit fugitive PM_{10} emissions from the following sources: construction, demolition, excavation, extraction, and other earth moving activities, bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources. Table 3 contains control measures that the Applicants would be required to implement during Project construction activities pursuant to *Rule 8021, Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities*.
- **Rule 4101 (Visibility)** limits the visible plume from any source to 20 percent opacity.
- **Rule 4102 (Nuisance)** prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public.

- **Rule 4601 (Architectural Coatings)** limits volatile organic compound (VOC) emissions from architectural coatings. This rule specifies architectural coatings storage, cleanup, and labeling requirements.
- **Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations)** limits VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations and applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.
- **Rule 9510 (Indirect Source Review)** requires certain development projects to mitigate exhaust emissions from construction equipment greater than 50 horsepower to 20 percent below statewide average NO_X emissions and 45 percent below statewide average PM_{10} exhaust emissions. This rule also requires applicants to reduce baseline emissions of NO_X and PM_{10} emissions associated with operations by 33.3 percent and 50 percent respectively over a period of 10 years (SJVAPCD 2017).

In addition to reducing a portion of the development Project's impact on air quality through compliance with District Rule 9510, a developer can further reduce a project's impact on air quality by entering a "Voluntary Emission Reduction Agreement" (VERA) with the District to address mitigation requirements under CEQA. Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which then are used by the District to administer emission reduction projects on behalf of the project proponent (SJVAPCD 2015b).

Table 3 SJVAPCD Rule 8021 Measures Applicable to the Project

No.	Measure
A.1	Pre-water site sufficient to limit visible dust emissions (VDE) to 20 percent opacity.
A.2	Phase work to reduce the amount of disturbed surface area at any one time.
B.1	Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity; or
B.2	Construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity. If using wind barriers, control measure B1 above shall also be implemented.
B.3	Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE 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 VDE 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.

No.	Measure
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer (APCO) prior to the start of any construction activity on any site that will include ten acres or more of disturbed surface area for residential developments, or five 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 APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO 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 APCO 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

Air Quality Management Plan

As required by the federal CAA and the California CAA, SJVAB or portions thereof have been classified as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether the standards have been achieved. Jurisdictions of nonattainment areas also are required to prepare an air quality management plan (AQMP) that includes strategies for achieving attainment. The SJVAPCD has approved AQMPs demonstrating how the SJVAB will reach attainment with the federal one-hour and eight-hour O_3, PM_{10}, and $PM_{2.5}$ and California CO standards.

OZONE ATTAINMENT PLANS

The *Extreme Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, sets forth measures and emission-reduction strategies designed to attain the federal one-hour O_3 standard by November 15, 2010, as well as an emissions inventory, outreach, and rate of progress demonstration. This plan was approved by the USEPA on March 8, 2010; however, the USEPA's approval was subsequently withdrawn effective November 26, 2012, in response to a decision issued by the U.S. Court of Appeals for the Ninth Circuit (*Sierra Club v. EPA*, 671 F.3d 955) remanding USEPA's approval of these SIP revisions. Concurrent with the USEPA's final rule, CARB withdrew the 2004 Plan. The SJVAPCD developed a new plan for the one-hour ozone standard, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, which it adopted in September 2013.

The *2007 Ozone Plan*, approved by CARB on June 14, 2007, demonstrates how the SJVAB would meet the federal eight-hour O_3standard. The *2007 Ozone Plan* includes a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the SJVAB. Additionally, this plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, and an increase in state and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire SJVAB into attainment with the federal eight-hour O_3 standard (SJVAPCD 2007a).

On April 16, 2009, the SJVAPCD Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans (2009 RACT SIP)* (SJVAPCD 2009a). In part, the *2009 RACT SIP* satisfied the commitment by the SJVAPCD for a new reasonably available control technology analysis for the one-hour O_3 plan (see discussion of the USEPA withdrawal of approval in the

Extreme 1-Hour Ozone Attainment Demonstration Plan summary above) and was intended to prevent all sanctions that could be imposed by USEPA for failure to submit a required SIP revision for the one-hour O_3standard. With respect to the eight-hour standard, the plan also assesses the SJVAPCD's rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB's designation as an extreme subsequently nonattainment area), evaluates SJVAPCD rules against new *Control Techniques Guidelines* promulgated since August 2006, and reviews additional rules and amendments that had been adopted by the Governing Board since August 17, 2006, for reasonably available control technology consistency.

The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013a). Based on implementation of the ongoing control measures, preliminary modeling indicates that the SJVAB will attain the one-hour standard before the final attainment year of 2022 and without relying on long-term measures under the federal CAA Section 182(e)(5) (SJVAPCD 2013a).

On June 19, 2014, the Governing Board adopted the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014) that includes a demonstration that the SJVAPCD rules implement RACT. The plan reviews each of the NO_x reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT. The plan's analysis of further ROG reductions through modeling and technical analyses demonstrates that added ROG reductions will not advance the SJVAB's O_3 attainment. Each ROG rule evaluated in the 2009 RACT SIP has been subsequently approved by the USEPA as meeting RACT within the last two years. The subsequent attainment strategy, therefore, focuses on further NO_X reductions.

SJVAPCD adopted the *2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard* in June 2020. This plan satisfies CAA requirements and ensures expeditious attainment of the 70 parts per billion eight-hour standard (SJVAPCD 2020).

PARTICULATE MATTER ATTAINMENT PLANS

In June 2007, the SJVAPCD Board adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD 2007b). This plan demonstrates how PM_{10} attainment in the SJVAB will be maintained in the future. Effective November 12, 2008, USEPA redesignated the SJVAB to attainment for the PM10 NAAQS and approved the 2007 PM_{10} Maintenance Plan (USEPA 2008).

In April 2008, the SJVAB Board adopted the *2008 $PM_{2.5}$ Plan* and approved amendments to Chapter 6 of the *2008 $PM_{2.5}$ Plan* on June 17, 2010 (SJVAPCD 2008). This plan was designed to addresses USEPA's annual $PM_{2.5}$ standard of 15 µg/m³, which was established by USEPA in 1997. In December of 2012, the SJVAPCD adopted the *2012 $PM_{2.5}$ Attainment Plan*, which addresses USEPA's 24-hour $PM_{2.5}$ standard of 35 µg/m³, which was established by USEPA in 2006 (SJVAPCD 2012). In April 2015, the SJVAPCD Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard* that addresses the USEPA's annual and 24-hour $PM_{2.5}$ standards established in 1997 after the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions, and the SJVAPCD was unable to meet the initial attainment date of December 31, 2015 (SJVAPCD 2015c).

SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* on September 15, 2016. This plan addresses the USEPA federal annual $PM_{2.5}$ standard of 12 µg/m^3, established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the Valley from Moderate nonattainment to Serious nonattainment (SJVAPCD 2016).

SJVAPCD adopted the *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards* in November 2018. This plan addresses the USEPA federal 1997 annual $PM_{2.5}$ standard of 15 µg/m^3 and the 24-hour $PM_{2.5}$ standard of 65 µg/m^3; the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m^3; and the 2012 annual $PM_{2.5}$ standard of 12 µg/m^3. The plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable as required under the federal CAA (SJVAPCD 2018).

Local

Kern County

Kern County has established a series of policies in the Kern County General Plan located in the Land Use, Open Space and Conservation Element to ensure the County can accommodate anticipated future growth and development and maintain a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services (County of Kern 2009). Applicable policies are as follows:

- **Policy 18:** The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations.
- **Policy 19:** In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the CEQA, the appropriate decision-making body, as part of its deliberations, will ensure that:
  - All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and
  - The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the CEQA.
- **Policy 20:** The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.
- **Policy 21:** The County shall support air districts efforts to reduce PM_{10} and $PM_{2.5}$ emissions.
- **Policy 22:** Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.
- **Policy 23:** The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District

The County also recommends preparation of a health risk assessment (HRA) analyzing acute, chronic, and carcinogenic health risks of pollutants, including TACs that would be emitted during the project operations, as part of an Air Quality Assessment. The HRA shall evaluate the risks of Air Quality Assessment pollutants such as diesel exhaust and any other pollutants emitted by the project that have been identified as acute, chronic, or carcinogenic substances by the California Office of Environmental Health Hazard Assessment (Kern County Planning Department 2006).

Existing Ambient Air Quality

The SJVAPCD operates six air quality monitoring station in the SJVAB within Kern County. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The nearest monitoring station is in Arvin at 19405 Buena Vista Boulevard, approximately 16 miles east of the Project site. This monitoring station measures only ozone. For PM_{10}, $PM_{2.5}$, and NO_2, the Bakersfield-5558 California Avenue monitoring station was used, which is approximately 18 miles north of the project site. Because monitoring is not generally conducted for pollutants that are no longer likely to exceed ambient air quality standards, there is no recent monitoring data available for CO or SO_2. Additionally, there was no monitoring data available for hydrogen sulfide, vinyl chloride, or other toxic air contaminants in Kern County or any nearby counties.

Table 4 indicates the number of days that each of the standards was exceeded at the Arvin or the Bakersfield-5558 California Avenue monitoring station. The 8-hour and 1-hour ozone NAAQS and CAAQS were exceeded in 2018, 2019, and 2020. Additionally, the PM_{10} CAAQS was exceeded all three years and the NAAQS was exceeded in 2020. The $PM_{2.5}$ NAAQS was exceeded in 2018, 2019, and 2020. No other federal or state standards were exceeded at this monitoring station.

Table 4 Ambient Air Quality at the Monitoring Station[1]

Pollutant	2018	2019	2020
Ozone, O_3			
8 Hour Ozone (ppm), 8-Hr Maximum[1]	0.101	0.087	0.105
Number of Days of State exceedances (>0.070)	69	39	74
Number of days of Federal exceedances (>0.070)	65	37	70
Ozone (ppm), Worst Hour[1]	0.113	0.108	0.133
Number of days above State standard (>0.09 ppm)	15	3	22
Respirable Particulate Matter, PM_{10}			
Particulate Matter 10 microns, μg/m^3, Worst 24 Hours[2]	140.2	125.9	196.8
Number of days above State standard (>50 μg/m^3)	13	17	18
Number of days above Federal standard (>150 μg/m^3)	0	0	1
Fine Particulate Matter, $PM_{2.5}$			
Particulate Matter <2.5 microns, μg/m^3, Worst 24 Hours[2]	98.5	59.1	159.7
Number of days above Federal standard (>35 μg/m^3)	36	12	44
Nitrogen Dioxide, NO_2[3]			
Nitrogen Dioxide (ppb), Worst Hour[2]	61.5	67.1	50.4
Number of days above State standard (>180 ppb)	0	0	0
Number of days above Federal standard (>100 ppb)	0	0	0

* Means there was insufficient data available to determine the value

[1] Measurements taken from the Arvin monitoring station at 19405 Buena Vista Boulevard.

[2] Measurements taken from the Bakersfield-5558 California Avenue monitoring station

Source: CARB 2021a

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include preexisting health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. Ambient air quality standards were established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. Standards are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. A total of seven sensitive receptors were identified with all locations consisting of single-family residences. The sensitive receptor closest to the Project site is a single-family residence located approximately 100 feet north of the closest Project parcel across Copus Road. Refer to Figure 3 for the location of the identified sensitive receptors nearest to the Project site.

Figure 3 Sources and Sensitive Receptors

3 Air Quality Impact Analysis

3.1 CEQA Checklist

The following analysis is provided to support environmental documentation pursuant to CEQA. The conclusions of the study are summarized in Table 5.

Table 5 Summary of Air Quality Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Mitigation Measures
Air Quality		
Would the Project conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Would the Project expose sensitive receptors to substantial pollutant concentrations?	Less than significant impact with mitigation.	Mitigation Measure AQ-1
Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None

3.2 Methodology

Methodology for Calculating Emissions

Construction and operational emissions were estimated from several emissions models and associated spreadsheet calculations, depending on the source type and data availability. The primary emissions models used included CARB's on-road vehicle EMission FACtor 2017 model (EMFAC2017) and the off-road diesel equipment emissions analysis and inventory (OFFROAD2017). Emission factors were obtained from the USEPA AP-42 *Compilation of Air Pollutant Emissions Factors* (USEPA 2006). Short-term and annual emissions were estimated using appropriate emission factors, the number of pieces of equipment, daily operating hours, and the associated schedules. See Table 1 for the overall construction schedule including phasing and phase durations assumed in the analysis. Refer to Appendix A for details on equipment fleet, hours of operation, vehicle miles traveled, construction schedule, and other assumptions used. The following construction and operational sources and activities were analyzed for emissions:

- **On-site construction equipment exhaust emissions (all criteria pollutants):** Based on EMFAC2017 and OFFROAD2017 emission factors and estimated equipment schedules.[4]
- **On-site construction equipment fugitive dust emissions (PM_{10} and $PM_{2.5}$)**: Based on USEPA AP-42 emission factors, equipment fleet mix, estimated equipment schedules, and vehicle miles traveled by off-highway trucks and construction equipment. Emissions from earthmoving

[4]The EMFAC 2017 model was used since this is the latest U.S. EPA approved version of EMFAC.

activities are based on USEPA AP-42 emission factors for fugitive dust and the total area to be graded. It is anticipated that all 492 acres of the Project site will be graded.

- **On-site and off-site haul truck (includes delivery, freight, and dump/water trucks) exhaust emissions (all criteria pollutants)**: Based on EMFAC2017 and estimated vehicle miles traveled. The sub-area of Kern (San Joaquin Valley), the calendar year of 2022, aggregate model year, aggregate speed, and the EMFAC 2007 vehicle categories were used for the EMFAC2017 output.
- **On-site and off-site entrained fugitive dust emissions for paved and unpaved road travel:** Based on AP-42 methodology and estimated vehicle miles traveled provided by the Project applicant.
- **Worker vehicle emissions for trips to and from the site:** Based on EMFAC2017 and estimated vehicle miles traveled.
- **Worker vehicle entrained fugitive dust emissions for paved roads**: Based on AP-42 methodology and estimated vehicle miles traveled.

The construction schedule and equipment were based on applicant-provided data. As previously mentioned in Section 1.4, *Construction Activities*, construction at some project parcels may occur simultaneously, and phases of construction would overlap. To provide a conservative analysis, it was assumed that construction activities would occur at each parcel simultaneously. In addition, emissions estimates include implementation of watering twice per day to comply with dust control measures specified in Rule 8021 of Regulation VIII.

Trip generation rates for employees and vendors were provided by GHD in the Traffic Assessment (GHD 2021). During operation of the solar facility, there would be one full-time employee on-site and occasional deliveries. A total of eight daily trips would be generated from Project operation with the trips accounting for commute, breaks, deliveries, and visitors. The on-site employee would use a light duty truck and vendors were assumed to use medium duty trucks. In addition, there would be an O&M building. The size of the O&M building is yet to be determined; for the purpose of this analysis, it was assumed to be approximately 1,000 square feet. The California Emissions Estimator Model (CalEEMod) version 2020.4.0 was used to estimate operational energy consumption for a 1,000-square foot O&M building using default demand factors for a “General Light Industrial” building. Operation and maintenance activities would require the use of vehicles and equipment including trucks for routine activities and periodic module washing, mowers or other vegetation management equipment, and additional periodic maintenance equipment such as all-terrain vehicles, tractors, portable generators, and portable water trailers. No heavy equipment would be used during normal facility operation. Additionally, the Project would include one emergency diesel generator on-site at the substation. In lieu of Project-specific information, the generator was assumed to be approximately 1,000 kW and operation information was taken from a Generac SD1000 1,000 kW industrial diesel generator set spec sheet (Generac 2021). For 24 hours, the useable capacity of the fuel tank would be approximately 1,900 gallons. The generators would be designed to provide up to 24 hours of emergency generation at full demand. Testing of the generators would occur no more than 100 hours annually, per SJVAPCD *Rule 4207 Internal Combustion Engines* (2013b).

Methodology for Determining Health Risks

Health impacts associated with TACs are generally from long-term exposure. Typical sources of TACs include industrial processes such as petroleum refining operations, commercial operations such as gasoline stations and dry cleaners, and diesel exhaust. Health impacts from TAC emissions during the operational phase of the Project are not expected because on-site routine maintenance and periodic PV

panel washing, and off-site employee-commute trips would not be a substantial source of ongoing TAC emissions. However, the use of large-scale off-road diesel equipment during Project construction may result in a short-term increase of TAC emissions. DPM would be the TAC emitted in the largest quantity during construction and is the primary contaminant of concern for the Project, thus health risks were assessed as they relate to DPM exposure.

The significance threshold for health risks differs from that used for criteria pollutants in that no specific air quality standards have been established for DPM emissions or many other TACs. Instead, significance thresholds are determined based on an analysis of the number of excess health risks relative to a chosen risk level. Health effects from carcinogenic air toxics usually are described in terms of cancer risk. Non-carcinogenic hazards include chronic and acute effects. Acute effects are due to short-term exposure, while chronic effects are due to long-term exposure to a substance. For chronic and acute risks, the hazard index is calculated as the summation of the hazard quotients for all chemicals to which an individual would be exposed.

Average concentrations of DPM at the highest exposed existing receptor were used to estimate potential chronic and carcinogenic health risk. DPM does not have an acute health impact and therefore an acute health risk evaluation is not included in this analysis. The health risk calculations were based on the standardized equations contained in the current Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015) and guidelines from the SJVAPCD *Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document Final Staff Report* (SJVAPCD 2015d). Toxicity values for the pollutants of concern were acquired from the OEHHA *Air Toxics Hot Spots Program Risk Assessment Guidelines and Inhalation RELs*[5] (OEHHA 2015). The carcinogenic health risk equations follow a dose response relationship where the dosage is averaged over a particular timeframe. To provide a conservative analysis, the timeframe for construction and decommissioning activities were assumed to be equivalent and no adjustments were made to the exposure duration (i.e., exposure duration 100 percent of the time was assumed). Additionally, the high-end breathing rate (95th percentile) by age bin was used and no fraction of time as residence was applied. To assess the reasonable worst-case scenario, it was assumed that an individual could be exposed to construction emissions as a child and decommissioning emissions as an adult over the course of a 70-year lifetime. Children are more affected by DPM emissions than adults because of the greater amount of air that they breathe on a daily basis compared to their body weight.

The air dispersion modeling for the HRA was performed using the USEPA AERMOD dispersion model, version 18081, that is part of the Air Dispersion Modeling and Risk Tool (ADMRT) version 21081 created by CARB. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (not a factor in this case). AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. For this analysis, AERMOD ready meteorological data from the Arvin station (Station ID 99001), which was pre-processed with AERMET version 18081, was obtained from the SJVAPCD. The meteorological data is from the years 2007 through 2013 The meteorological station is approximately 23 miles from the nearest point of the Project site.

Based on the anticipated construction schedule, the average workday would be approximately eight hours for a five-day per week schedule. Some work may be required on the weekends. Therefore, the emission rates were assumed to be limited to the hours of 9:00 a.m. to 5:00 p.m. every day of the week. The model was run to obtain the maximum one-hour and average concentration across the five-

[5] OEHHA Reference Exposure Levels (RELs) are updated regularly at www.oehha.ca.gov/air/Allrels.html

year period described above for each year of anticipated construction (i.e., 2023 and 2024). A total of seven dispersed sensitive receptors were identified and included in the dispersion model. In addition to the identified nearby sensitive receptors, a Cartesian grid spaced at 328-feet (100-meter) intervals that encompassed the Project site and a square area of 16,076 feet by 16,076 feet (4,900 meters by 4,900 meters) was used to evaluate the Project's potential health impact and validate that the defined sensitive receptors captured the highest off-site exposure. The generated Cartesian grid total 2,500 receptors.

Each APN parcel that makes up the Project site was input to AERMOD as an area polygon source where construction emissions were apportioned to each Project parcel based on its percentage of the Project's gross acreage. A total of six individual area polygon areas were used to model construction. Emissions from construction trucks and equipment were assigned a release height of 5 meters (16 feet), which is the approximate average height of the exhaust port plus a nominal amount of plume rise for construction equipment operating during daytime atmospheric conditions (SCAQMD 2008). Health risk for the Project was evaluated assuming that construction on each Project parcel would occur simultaneously. As previously mentioned, only the risk associated with construction and decommissioning activities was assessed because operational emissions would not be significant (Appendix B).

The total PM_{10} exhaust emissions for all on-site diesel equipment and on-site mobile emissions for the entire construction period were divided by the construction working days to determine the maximum hourly emission rate. AERMOD was used to determine the non-pollutant specific concentration at receptor points by source using a unit emission rate of 1 g/sec -m^2. The non-pollutant specific concentration was then multiplied by the actual pollutant specific emission rates (i.e., annual average in pounds per year and maximum hourly in pounds per hour) to determine the cumulative source ground-level pollutant specific concentration (GLC) at each receptor subsequently used to determine cancer and non-cancer health impacts using the CARB Hot Spots Analysis and Reporting Program Version 2 (HARP 2) version 21081.[6] Chronic, acute, and carcinogenic health risk were further refined by age bin based on the USEPA (2005) guidance on the use of early life exposure adjustment factors (*Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*, EPA/630/R-003F) and standardized dose algorithms contained in the current OEHHA guidance.

Because HARP 2 does not include an option to evaluate health risk using partial years (i.e., 16 months for construction and 32 months for construction and decommissioning), carcinogenic health risk results presented herein were calculated outside of HARP 2 using the standardized dose algorithms contained in the current OEHHA guidance. Note that the estimated concentration is not a specific prediction of the actual concentrations that would occur at any one point or any specific time over the course of the construction period. Actual concentrations are dependent on many variables, particularly the number and type of equipment working at specific distances during time periods of adverse meteorology. Various activities would occur at different Project sites throughout the overall Project, and equipment would be close to adjacent receptors for a limited period of time, and then several miles from the same receptor at other times.

[6] See Appendix B for AERMOD output files and GLC period files used to calculate health risk.

3.3 Significance Criteria

Kern County Planning Department

The Kern County Planning Department has developed the following thresholds of significance for operation and construction of projects in western portion of the county under the jurisdiction of the SJVAPCD (Kern County Planning Department 2006):

- 10 tons per year of ROG
- 10 tons per year of NOx
- 15 tons per year of PM10

The Board of Supervisors adopted these annual thresholds, which were designed to help in determining cumulative air quality impacts.

SJVAPCD

Additionally, the SJVAPCD recommends the use of quantitative thresholds to determine the significance of temporary construction-related pollutant emissions and long-term operation-related emissions. SJVAPCD has two sets of significance thresholds for each pollutant for operational emissions depending on whether the activities are for permitted equipment and activities or non-permitted equipment and activities. The current adopted thresholds of significance for criteria pollutants are the same for construction activities and operational emissions regardless of whether the sources are permitted equipment and activities or non-permitted equipment and activities. Project operation includes one emergency generator at the substation as well as non-permitted equipment and activities . Therefore, the project impacts were evaluated using operational thresholds for both permitted and non-permitted equipment and activities, and construction activities. These thresholds are shown in Table 6.

Table 6 SJVAPCD Air Quality Significance Thresholds

Pollutant	NO_X	ROG	PM_{10}	$PM_{2.5}$	SO_X	CO
Construction and Operation Thresholds (Tons Per Year)	10	10	15	15	27	100

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Source: SJVAPCD 2015a

In addition to the annual thresholds outlined above, SJVAPCD has published the *Ambient Air Quality Analysis Project Daily Emissions Assessment* guidance, which is summarized in Section 8.4.2, *Ambient Air Quality Screening Tools*, of the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)*, adopted in March 2015. The *Ambient Air Quality Screening Tools* guidance provides a screening threshold of 100 pounds per day for NO_X, ROG, PM_{10}, $PM_{2.5}$, SO_X, and CO.

The screening threshold was used to evaluate construction activities and operational activities separately. Per SJVAPCD's GAMAQI Rule 9510 – Indirect Source Review, when assessing the significance of project-related impacts on air quality, the impacts *may* be significant if on-site emissions from construction or operational activities exceed the 100 pounds per day screening level after implementation of all enforceable mitigation measures. The Project would be subject to Rule 9510 because it would develop more than 9,000 square feet, which is the ambient air quality analysis

screening level threshold for unconventional land uses developments not identified as residential, commercial, or industrial (e.g., solar facility).

In this analysis, for any phase (construction and/or operation) that results in a pollutant that exceeds this screening threshold, an ambient air quality analysis (AAQA) would be conducted following District Rule 2201 *AAQA Modeling*. An AAQA uses air dispersion modeling to determine if emission increases from a project's construction or operational activities would, in combination with background concentrations, cause or contribute to a violation of an ambient air quality standard. If modeled concentrations combined with background concentrations would result in an exceedance of a NAAQS or CAAQS, then SJVAPCD Rule 2201 requires that the maximum modeled concentration of each pollutant be compared to its corresponding Significant Impact Level. If modeled concentrations do not exceed the Significant Impact Level, then the project would not result in a violation of ambient air quality standards.

The SJVAPCD has also established thresholds for health effects from carcinogenic and non-carcinogenic air toxics. The SJVAPCD recommends a carcinogenic (cancer) risk threshold of 20 in a million. The Chronic Hazard Index (HIC) is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SJVAPCD recommends a HIC significance threshold of 1.0 and an acute hazard index (HIA) of 1.0. No short-term, acute relative exposure values are established and regulated for DPM; therefore, acute exposure is not addressed in the HRA.

3.4 Impact Analysis

Threshold 1:	Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 THE PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE 2020 REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) DEMONSTRATION FOR THE 2015 8-HOUR OZONE STANDARD NOR THE 2013 PLAN FOR THE REVOKED 1-HOUR OZONE STANDARD, 2007 PM_{10} MAINTENANCE PLAN AND REQUEST FOR RE-DESIGNATION, 2012 $PM_{2.5}$ PLAN, AND 2015 PLAN FOR THE 1997 $PM_{2.5}$ STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Air Quality Management Plan Consistency

Construction, operation and maintenance, and decommissioning of the Project would result in emissions of criteria pollutants including ozone precursors, such as ROG and NO_X as well as particulate matter. The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards, the most recent of which include the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2007 PM_{10} Maintenance Plan and Request for Re-designation, 2012 $PM_{2.5}$ Plan*, and *2015 Plan for the 1997 $PM_{2.5}$ Standard*. The SJVAB is in attainment for CO, SO_2, and lead, so there are no attainment plans for those pollutants.

Per the *GAMAQI*, the SJVAPCD has determined that projects with emissions above the thresholds of significance for criteria pollutants would conflict with/obstruct implementation of the SJVAPCD's air quality plan (SJVAPCD 2015a). As discussed under Impact AQ-2, neither project construction nor operation would exceed the SJVAPCD threshold for criteria pollutants. Furthermore, the screening AAQA recommended by SJVAPCD in their GAMAQI indicates project-related emissions would not contribute to a violation of an ambient air quality standard since maximum daily emissions from construction and operation are below the screening threshold of 100 pounds per day. Therefore,

project construction and operation would not conflict with implementation of existing air quality plans. Impacts would be less than significant.

Threshold 2	Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

Impact AQ-2 PROJECT CONSTRUCTION AND OPERATION WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF A CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction Impacts

Construction of the Project would require approximately 16 months of continuous construction involving several overlapping phases. Refer to Section 1.3, *Construction Activities*, for phasing specifics related to the Project construction schedule. Construction of the Project would generate air pollutant emissions from entrained dust, off-road equipment use, vehicle emissions, and architectural coatings. Off-site emissions would be generated by construction worker daily commute trips and heavy-duty diesel haul and vendor truck trips. Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Construction of the gen-tie is incorporated into the provided construction schedule and equipment mix. Therefore, emissions associated with the gen-tie are inherently incorporated into the impacts associated with the Project. Table 7 shows the estimated annual construction emissions by construction year absent the requirements of Rule 9510 and Rule 8021. All unmitigated construction emissions would be below the SJVAPCD annual threshold for both years of construction.

Table 7 Construction Emissions – Without Compliance with SJVAPCD Rule 9510 and Rule 8021

		Emissions (tons per phase)[2]					
Emission Type	**Source**	**ROG**	**NO_X**	**SO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2023							
Exhaust	Off-Road Construction Equipment	0.9	7.9	<0.1	8.5	0.4	0.3
	On-Road Vehicles	<0.1	0.8	<0.1	0.7	<0.1	<0.1
Fugitive Dust[1]	Off-Road Construction Activity	—	—	—	—	6.8	0.7
	On-Road Vehicles (resuspended)	—	—	—	—	7.0	0.7
Total		**0.9**	**8.7**	**<0.1**	**9.2**	**14.2**	**1.7**
Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	No	No
2024							
Exhaust	Off-Road Construction Equipment	<0.1	0.2	<0.1	0.2	<0.1	<0.1
	On-Road Vehicles	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fugitive Dust[1]	Off-Road Construction Activity	—	—	—	—	0.1	<0.1
	On-Road Vehicles (resuspended)	—	—	—	—	0.7	0.1
Total		**<0.1**	**0.2**	**<0.1**	**0.2**	**0.8**	**0.1**
Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	No	No

[1] Fugitive dust describes particulate matter that is emitted into the air due to earth moving activities or that has been re-suspended.

[2] Emissions by construction year are based on an estimated construction schedule and construction starting in 2023 and ending in 2024.

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Notes: Rounded values shown; columns may not add up correctly. Subtotal equals the sum of all exhaust and fugitive dust emissions from off-road construction equipment and on-road vehicles. See Appendix A for calculations.

However, the Project would be required to comply with SJVAPCD Rule 9510, Indirect Source Review, which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_X and 45 percent for PM_{10} compared to the statewide average. Further, in addition to the required Rule 9510, the Project would also have to comply with dust mitigation per Rule 8021 which would further reduce dust emissions. The NO_x emissions account for Rule 9510 and the PM emissions in Table 8 account for water control measures as described in Section 1.4, *Construction Activities* along with Rule 9510. As shown in Table 8 compliance with SJVAPCD Rule 9510 and Rule 8021 would further reduce annual emissions of NO_X and PM emissions below the SJVAPCD annual threshold. Impacts would be less than significant.

Table 8 Construction Emissions – With Compliance with SJVAPCD Rule 9510 and Rule 8021

		Emissions (tons per phase)[2]					
Emission Type	**Source**	**ROG**	**NO_X**	**SO_X**	**CO**	**PM_{10}[3]**	**$PM_{2.5}$[3]**
2023							
Exhaust	Off-Road Construction Equipment	0.9	6.3	<0.1	8.5	0.2	0.3
	On-Road Vehicles	<0.1	0.8	<0.1	0.7	<0.1	<0.1
Fugitive Dust[1]	Off-Road Construction Activity	—	—	—	—	3.5	0.1
	On-Road Vehicles (resuspended)	—	—	—	—	3.7	0.4
Total		**0.9**	**7.1**	**<0.1**	**9.2**	**7.4**	**0.8**
Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	No	No
2024							
Exhaust	Off-Road Construction Equipment	<0.1	0.1	<0.1	0.2	<0.1	<0.1
	On-Road Vehicles	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fugitive Dust[1]	Off-Road Construction Activity	—	—	—	—	<0.1	<0.1
	On-Road Vehicles (resuspended)	—	—	—	—	0.4	<0.1
Total		**<0.1**	**0.2**	**<0.1**	**0.2**	**0.4**	**<0.1**
Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	No	No

[1] Fugitive dust describes particulate matter that is emitted into the air due to earth moving activities or that has been re-suspended.

[2] Emissions by construction year are based on an estimated construction schedule and construction starting in 2023 and ending in 2024.

[3]Includes compliance with Rule 8021 dust control measures, which accounts for watering.

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Notes: Rounded values shown; columns may not add up correctly. Subtotal equals the sum of all exhaust and fugitive dust emissions from off-road construction equipment and on-road vehicles. See Appendix A for calculations.

Construction Ambient Air Quality Impact Assessment

The SJVAB is a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The current air quality in the SJVAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., ROG and NO_X for ozone) potentially contribute to poor air quality. Construction activities would not exceed the SJVAPCD's recommended 100 pounds per day screening threshold during construction, as shown in Table 9. Therefore, an AAQA is not required for construction activities and Project construction would not potentially violate air quality standards or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant.

Table 9 Maximum Daily Construction Emissions

	Emissions (lbs/day)					
	ROG	NO_X	SO_X	CO	PM_{10}[1]	$PM_{2.5}$[1]
Maximum Daily Emissions	9.0	65.8	0.2	91	76.5	7.4
Threshold	100	100	100	100	100	100
Threshold Exceeded?	No	No	No	No	No	No

[1]Includes compliance with Rule 8021 dust control measures, which accounts for watering.

lbs/day = pounds per day; NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Operational Impacts

Operational Air Pollutant Emissions

As discussed in Section 1.5, *Operational Activities*, the Project would have one personnel onsite daily with occasional equipment and material delivery. The Project would also have one O&M building and install an emergency diesel generator that would be used approximately 100 hours per year for testing and maintenance purposes. As shown in Table 10, operational emissions from the Project would not exceed SJVAPCD recommended daily or annual thresholds for any criteria pollutant. Project operation would also not generate emissions exceeding SJVAPCD's recommended 100 pounds per day screening threshold for any criteria pollutant; therefore, an AAQA is not required for operation activities. Impacts would be less than significant.

Table 10 Estimated Operational Emissions

		Emissions					
Emission Type	Source	ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$
Exhaust	On Road and On-Site Vehicles	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fugitive Dust	Maintenance Vehicles	–	–	–	–	<0.1	<0.1
O&M Building and Emergency Diesel Generator		0.1	0.4	0.1	0.2	0.1	0.1
Total (tons/year)		**0.1**	**0.4**	**0.1**	**0.2**	**0.2**	**0.1**
SJVAPCD Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	No	No
Total Daily Operations[1] (lbs/day)		**0.8**	**3.5**	**0.8**	**1.9**	**1.3**	**0.9**
SJVAPCD Operational Threshold		100	100	100	100	100	100
Exceed Threshold?		No	No	No	No	No	No

[1] Annualized at 250 working days per year

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Totals may not add up due to rounding. Subtotal equals the sum of all exhaust and fugitive dust emissions from on-road and on-site vehicles. See Appendix A for calculations.

EMISSIONS DISPLACED DURING OPERATION

The operation of the Project as a renewable energy source would indirectly cause the replacement of fossil fuel energy production facilities and thereby displace criteria pollutants created by existing power generation sources. The Project would generate a maximum of 70 MW of electricity at any given time. Over the 35-year lifespan of the Project, approximately 5,482 gigawatt-hours (GWh) of electricity would be produced, which equates to 157 GWh of electricity per year. Table 11 shows the criteria pollutant emissions that would be displaced by the Project. That this estimate only includes emissions generated by the combustion of fossil fuels and does not include operational employee trips or the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of emissions from the portion of the California electricity market that comes from fossil fuels (approximately 67 percent of the market) and does not include displacement of emissions from the portion of the California electricity market generated by non-combustion sources (i.e., wind, solar, nuclear, hydro-electric) (CEC 2021). Refer to Appendix A for detailed calculations related to the Project's annual energy generation.

Table 11 Criteria Pollutant Emissions Displaced by the Project

	Emissions					
	ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$
Emissions Displaced Annually (tons per year)	<1	39	1	5	1	1
Total Emissions Displaced over Lifetime of Project – 35 Years (tons)	2	1,381	52	168	50	21

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less

Source: Refer to Appendix A for displacement calculations

Decommissioning Impacts

As stated in Section 1.6, *Decommissioning Activities*, at the end of the Project's useful life (anticipated to be 35 years), the solar facility would be decommissioned and completely removed from the site. At this time, it is not possible to quantitatively evaluate potential air quality impacts that would result from Project decommissioning since technology and construction practices available at that time would different. Therefore, based on current decommissioning practices and as a reasonable worst-case scenario, this analysis assumes that air quality impacts generated during future decommissioning would be similar to air quality impacts generated during the construction phase of the Project.

The Project would be required to comply with SJVAPCD Rule 8021, which requires implementation of dust control measures, and SJVAPCD Rule 9510, Indirect Source Review, which requires reduction of engine exhaust emissions of NO_X and PM_{10}. Moreover, emissions would be reduced due to the more stringent USEPA emission standards for diesel engines and cleaner vehicles. As such, decommissioning activities on the Project site would not result in exceedances of SJVAPCD recommended thresholds or contribute to a violation of an ambient air quality standard.

The Project applicant would be required to develop a Decommissioning Plan for review and approval by the Kern County Planning and Community Development Department. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and be conducted in accordance with all applicable federal, state, and county regulations. Additionally, recommendations related to the decommissioning of utility sized solar facilities are included as a requirement of all proposed solar projects in Kern County to establish safeguards to ensure the

maintenance of the health, safety, and welfare of the citizens of the County. Impacts would be less than significant.

Threshold 3:	Would the Project expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3 CONSTRUCTION AND OPERATION OF THE PROJECT WOULD NOT RESULT IN EMISSIONS OF TACS SUFFICIENT TO EXCEED APPLICABLE HEALTH RISK CRITERIA. THE PROJECT WOULD NOT INCREASE CARBON MONOXIDE CONCENTRATIONS SUCH THAT IT WOULD CREATE CARBON MONOXIDE HOTSPOTS. HOWEVER, THE PROJECT MAY EXPOSE WORKERS AND NEARBY RECEPTORS TO VALLEY FEVER BUT WITH MITIGATION MEASURE AQ-1 THE IMPACTS WOULD BE LESS THAN SIGNIFICANT. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION MEASURE AQ-1.

Toxic Air Containments

Construction Health Risk Assessment

As described in Section 1.4, *Construction Activities*, Project components at all parcels, gen-tie corridor, and substations would be constructed over a period of 16 months. Construction of the Project would require use of heavy-duty construction equipment and diesel trucks which would emit DPM. As previously mentioned, construction and associated emissions related to the gen-tie are incorporated into the provided construction schedule and equipment mix. Figure 3 shows the receptor grids used to model health risk, the receptor grid point of maximum impact (PMI) off-site, and the maximum exposed individual resident (MEIR).

The worst possible scenario where construction at all parcels would occur simultaneously was assessed to provide the most conservative health risk assessment. The highest off-site modeled average DPM concentration of 0.032 µg/m^{3}and PMI within the receptor grids would occur within the middle of the southern quadrant of APN 295-130-78 (1) approximately 435 feet west of Old River Road. The Project MEIR was determined to be at a single-family residence northeast of the Copus Road and Old River Road Intersection. The DPM concentration at the MEIR for the Project was estimated at 0.017 µg/m^3. The carcinogenic and chronic health risks at the PMI and MEIR from construction and construction plus decommissioning activities are contained in Table 12 (refer to Appendix C for detailed health risk estimates).[7] The cancer risks shown in Table 12 represent the maximum risk at the location of an individual receptor at a specific age. It is assumed in the HRA that the MEIR would be exposed to construction exhaust emissions while they are a third trimester fetus and a two-year-old child. Project decommissioning would occur 35 years later and said MEIR would be approximately 37 years of age, thus the age sensitivity for the 16 though 70 years age group is used. The total risk is the sum of the construction and decommissioning cancer risks over the lifetime of the MEIR and at the PMI. Note that the chronic risk hazard quotient is a unitless value that represents non-carcinogenic risk, and this value is based on the maximum annual concentration. Refer to Figure 3 for the location of the PMI and MEIR in reference to the Project site. As shown therein, excess cancer risk and chronic risk associated with Project construction and decommissioning would not exceed the SJVAPCD risk criteria at the PMI or the MEIR even if construction occurred at all parcels simultaneously. Impacts would be less than significnat.

[7] Note that the HARP risk modeling does not allow exposure duration to be based on half years, only whole years. This project's construction would be ongoing for approximately 1.3 years and would be approximately 2.7 years for construction plus decommissioning. Therefore, the cancer risk impact was calculated outside of the model using the specific exposure duration of 1.3 and 2.7 years.

Table 12 Health Risks Associated with Diesel Particulate Emissions During Construction and Decommissioning of Project

Receptor Scenario	Cancer Risk (per million)	Chronic Risk Hazard Quotient[4]
Construction		
PMI[1]	7.3	0.01
MEIR[1]	4.0	<0.01
Risk Criteria	**20 per million**	**1.0**
Exceed Criteria?	No	No
Decommissioning		
PMI[2]	0.2	0.01
MEIR[2]	0.1	0.01
Risk Criteria	**20 per million**	**1.0**
Exceed Criteria?	No	No
Total Risk[5]		
PMI[3]	7.5	0.01
MEIR[3]	4.1	0.01
Risk Criteria	**20 per million**	**1.0**
Exceed Criteria?	No	No

[1]The cancer risk sum for construction activities is based on a 16-month exposure. Age groups exposed include 3rd trimester and 0-2 years. The cancer risk value shown represents the maximum risk that a receptor in that age group could be exposed to during construction activities.

[2]The cancer risk for decommissioning activities is based on a 16-month exposure and accounts for a 35-year gap between construction and decommissioning. The PMI and MEIR would be in the 16-70s year age groups. The cancer risk value shown represents the maximum risk that a receptor in that age group could be exposed to during decommissioning activities.

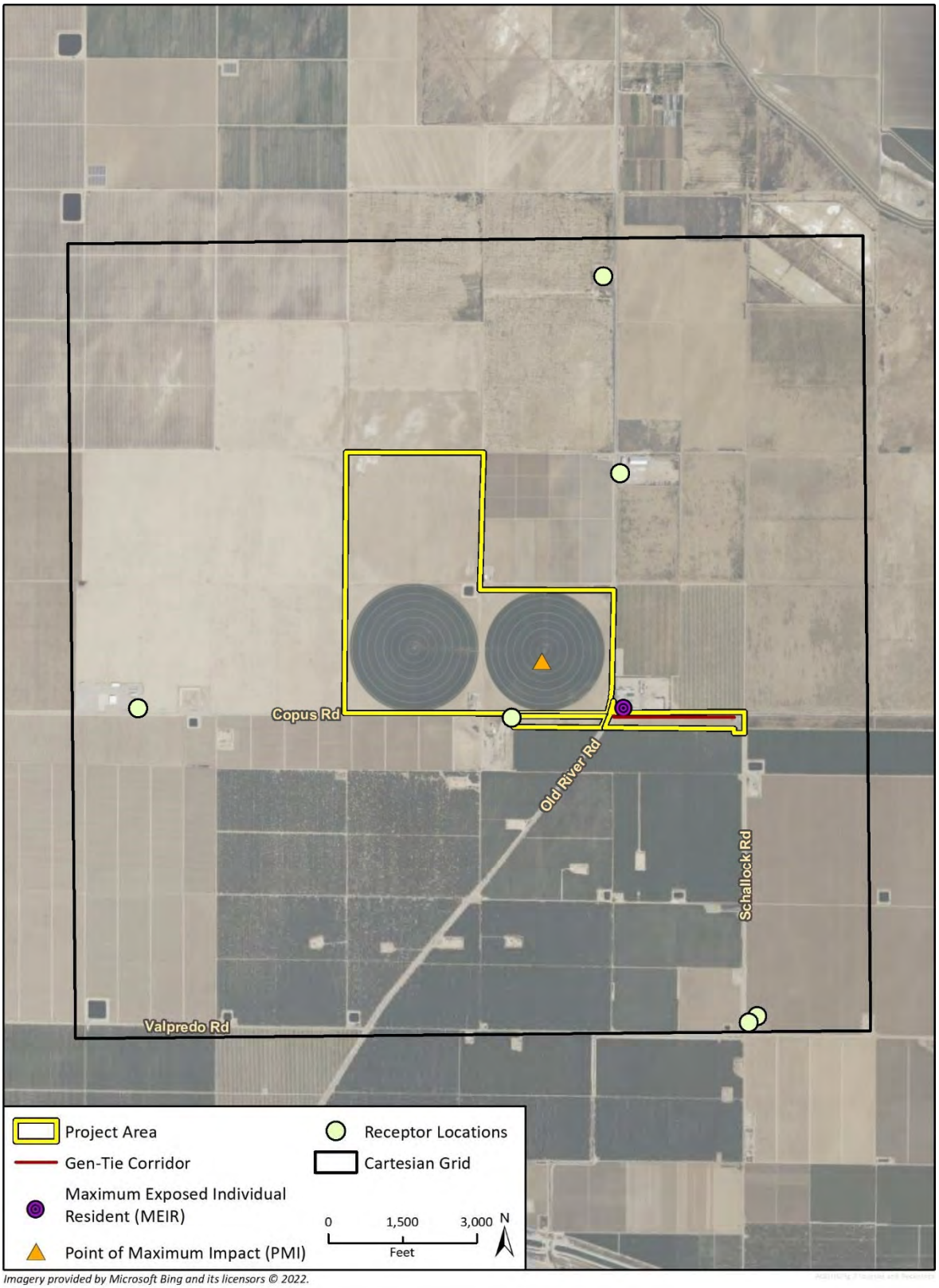
[3]The total maximum risk is the sum of the construction and decommissioning over a 70-year lifetime at the PMI and the MEIR accounting for the 35-years gap between construction and decommissioning.

[4]The chronic risk hazard quotient is a unitless value that is based on the highest annual concentration, and it is not dependent on age sensitivity factors or age groups.

[5]The total risk is the sum of the construction and decommissioning cancer risk values over the lifetime of the PMI and MEIR.

PMI = Point of Maximum Impact; MEIR = Maximally Exposed Individual Receptor

Figure 3 Sources and Sensitive Receptors



Operation

As previously discussed, health impacts due to DPM are largely related to construction equipment exhaust. Because limited diesel-powered equipment, including the emergency generator, would be in use during operational activities and the estimated PM_{10} emissions (i.e., DPM equivalent) related to exhaust emissions are minimal, health impacts from operational activities would be less than significant.

Health Impacts of CO

Exposure to high concentrations of CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. SJVAPCD is currently classified as in attainment or unclassified for CO; however, there is a potential for the formation of microscale CO "hotspots" to occur immediately around points of congested traffic. Hotspots can form if such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and/or is operating on roadways crowded with non-project traffic. CO hotspots are of particular concern in densely populated metropolitan areas where there are buildings that impeded dispersion of pollutants from an intersection. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 parts per million (ppm) or the federal and state eight-hour standard of 9.0 ppm (CARB 2016).

SJVAPCD recommends comparing project's attributes with the following screening criteria as a first step to evaluating whether the project would result in the generation of CO concentrations that would substantially contribute to an exceedance of the *Thresholds of Significance*. The Project would result in a less than significant impact to localized CO concentrations if (SJVAPCD 2015a):

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
2. A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets at more one or more intersections in the project vicinity.

The nearby existing roadways, Copus Road and Old River Road, operate at LOS A. With the construction traffic from the Project, the LOS conditions would be reduced to LOS B for a majority of the intersections, while the Copus Road/Old River Road intersection would be reduced to LOS C during PM peak hour traffic (GHD 2021). Thus, none of the existing intersections operate at LOS F and the Project's construction traffic would not reduce conditions to LOS F. Furthermore, construction traffic is temporary and would cease upon completion. The intersections would then operate at similar LOS as the existing conditions. In addition, during Project operation there would only be a total of eight daily trips for one O&M employee and deliveries. These vehicle trips could not result in a CO hotspot due to the small magnitude of emission sources and the low emission rates that occur due to catalytic converters. Moreover, the Project site is in a rural flat area where air dispersion is not impeded by buildings or nearby terrain; therefore, CO emissions generated would disperse rapidly and construction traffic would not generate CO hotpots. Therefore, the SJVAPCD screening thresholds would not be exceeded, and the Project would not result in a localized CO hotspot. Impacts would be less than significant.

Valley Fever

Construction activities that include ground disturbance can result in fugitive dust, which can cause fungus *Coccidioides* spores to become airborne if they are present in the soil. These spores can cause Valley Fever. Workers who disturb soil where fungal spores are found, whether by digging, operating earthmoving equipment, driving vehicles, or by working in dusty, wind-blown areas, are more likely to breathe in spores and become infected. It is not a contagious disease and secondary infections are rare. The Project site is located in the Valley West region of Kern County where the increased risk is highest compared to other parts of the County (Kern County Public Health Services Department 2021) Construction activities associated with the Project would include ground-disturbing activities that could result in an increased potential for exposure of nearby residents and on-site workers to airborne spores, if they are present. Compliance with dust control measured required by SJVAPCD Rule 8021 (as detailed in Table 3) would minimize personnel and public exposure to Valley Fever and reduce the potential risk of nearby resident and on-site worker exposure to Valley Fever. However, Mitigation Measure AQ-1 is provided to ensure that personnel and public exposure to Valley Fever is minimized to the greatest extent possible. Therefore, impacts would be less than significant with implementation of Mitigation Measure AQ-1

Threshold 4:	Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQ-4 THE PROJECT WOULD NOT GENERATE ODORS ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE DURING CONSTRUCTION OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Substantial objectionable odors are normally associated with agriculture, wastewater treatment, industrial uses, or landfills. The Project would involve the construction, operation and maintenance, and decommissioning of a solar energy facility and associated infrastructure that do not produce objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. Construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (adjacent residences). In addition, construction-related odors would be short-term and would cease upon completion of construction. Operation of the Project would not emit any odorous compounds. Impacts would be less than significant.

4 Greenhouse Gases

4.1 Environmental Setting

GHGs and climate change are a cumulative global issue. CARB and USEPA regulate GHG emissions within the State of California and the United States, respectively. While the CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided California into regional air basins. The Project is in unincorporated western Kern County, which is within the SJVAB, and under the jurisdiction of the SJVAPCD.

Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but climate change is preferred because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates in historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The United Nations Intergovernmental Panel on Climate Change (IPCC) expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021).

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. The gases widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and natural processes, such as oceanic evaporation, largely determine its atmospheric concentrations.

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (USEPA 2020).

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100

years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis. N_2O has a GWP of 273 (IPCC 2021).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2020). However, since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by 47 percent, 156 percent, and 23 percent, respectively, primarily due to human activity (IPCC 2021). GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

Greenhouse Gas Emissions Inventory

Global Emissions Inventory

Worldwide anthropogenic emissions of GHGs were approximately 49,000 million metric tons (MMT) of CO_2e in 2010 (IPCC 2014). Carbon dioxide emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, CO_2 was the most abundant, accounting for over 75 percent of total 2010 emissions. Methane emissions accounted for 16 percent of the 2010 total, while N_2O and fluorinated gases accounted for 6 percent and 2 percent respectively (IPCC 2014).[8]

United States Emissions Inventory

Total U.S. GHG emissions were 6,558 MMT of CO_2e in 2019. Emissions decreased by 1.7 percent from 2018 to 2019; since 1990, total U.S. emissions have increased by an average annual rate of 0.06 percent for a total increase of 1.8 percent between 1990 and 2019. The decrease from 2018 to 2019 reflects the combined influences of several long-term trends, including population changes, economic growth, energy market shifts, technological changes such as improvements in energy efficiency, and decrease carbon intensity of energy fuel choices. In 2019, the industrial and transportation end-use sectors accounted for 30 percent and 29 percent, respectively, of nationwide GHG emissions while the commercial and residential end-use sectors accounted for 16 percent and 15 percent of nationwide GHG emissions, respectively, with electricity emissions distributed among the various sectors (USEPA 2021).

California Emissions Inventory

Based on the CARB California Greenhouse Gas Inventory for 2000-2018, California produced 418.2 MMT of CO_2e in 2019, which is 7.2 MMT of CO_2e lower than 2018 levels. The major source of GHG emissions in California is the transportation sector, which comprises 40 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 21 percent of the state's GHG emissions while electric power accounts for approximately 14 percent (CARB 2021b). The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2016, the State of California

[8] Updated global anthropogenic GHG emissions have not been published yet by the IPCC.

achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e (CARB 202ab). The annual 2030 statewide target emissions level is 260 MMT of CO_2e (CARB 2017).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources though potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) from 2015 to 2017 was approximately 1.0°C higher than the average GMST over the period from 1880 to 1900 (National Oceanic and Atmospheric Administration 2020). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations jointly indicate that LSAT and sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014 and 2018).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snow pack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018). In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state and regionally-specific climate change case studies (State of California 2018). However, while there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California as a result of climate change.

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century (State of California 2018). Higher temperatures are conducive to air pollution formation, and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have occurred at higher elevations in the Sierra Nevada Mountains (State of California 2018). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality could worsen. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains could tend to temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them (California Natural Resources Agency 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts (State of California 2018). The Sierra snowpack provides the majority of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack (State of California 2018). Projections indicate that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018).

Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding (State of California 2018). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 1993 to 2020, observed by satellites, is approximately 3.3 millimeters per year, double the twentieth century trend of 1.6 millimeters per year (World Meteorological Organization 2013; National Aeronautics and Space Administration 2020). Global mean sea levels in 2013 were about 0.23 meter higher than those of 1880 (National Aeronautics and Space Administration 2020). Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea level rise of 0.28 to 0.55 meter by 2100 (IPCC 2021). Between the years of 1901 and 2018, the global mean sea level increased by 0.20 meters with human influence as the likely driver of said increase since at least 1971 (IPCC 2021). A rise in sea levels could erode 31 to 67 percent of southern California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This would also jeopardize California's water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2018). Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has an over $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2020). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, crop yield could be threatened by water-induced stress and extreme heat waves, and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018). Temperature increases could also change the time of

year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems and Wildlife

Climate change and the potential resultant changes in weather patterns could have ecological effects on the global and local scales. Soil moisture is likely to decline in many regions as a result of higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018).

4.2 Regulatory Setting

Federal

USEPA "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that USEPA has the authority to regulate motor-vehicle GHG emissions under the federal CAA. The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. In 2012, the USEPA issued a Final Rule that establishes the GHG permitting thresholds that determine when federal CAA permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* (134 S. Ct. 2427 [2014]) held that USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

State

The legal framework for GHG emission reduction in California is built upon executive orders, legislation, and regulations. The major components of California's climate change initiative are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, USEPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025,

when the rules will be implemented fully, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

Executive Order N-79-20

On September 23, 2020, the governor issued Executive Order N-79-20, which sets a new statewide goal of phasing out gasoline powered vehicles and equipment. The executive order includes three main goals that CARB will be required to develop regulations for. The order requires that by 2035, all in-states sales of new passenger cars and trucks be 100 percent zero-emissions. By 2045, 100 percent of medium-and-heavy-duty vehicles operating in the State will be zero-emissions where feasible and by 2035 for drayage trucks. Also, by 2035, all off-road vehicles and equipment will be 100 percent zero emissions.

Executive Order S-3-05

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the State's longer-term GHG reduction strategies with other State policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill (SB) 32, discussed below, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes (CARB 2017).

Senate Bill 97

SB 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The updated GHG emission reduction targets took effect October 1, 2018.

Senate Bill 32

On September 8, 2016, the governor signed SB 32 into law, extending AB 32 by requiring the state to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (regional, sub-regional, county, or city level), but not for specific individual projects because they include all emissions sectors in the state.

Senate Bill 350

Adopted on October 7, 2015, SB 350 supports the reduction of GHG emissions from the electricity sector through a number of measures, including requiring electricity providers to achieve a 50 percent renewables portfolio standard by 2030, a cumulative doubling of statewide energy efficiency savings in electricity and natural gas by retail customers by 2030.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by the Governor in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) also was required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC. The Solar Facility meets the criteria of a renewable energy generation facility as defined in Chapter 8.6 of Division 15 of the Public Resources Code and therefore is determined by rule to comply with the GHG Emission Performance Standards requirements of SB 1368.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard (RPS) Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. This further supports the reduction of GHG emissions from the electricity sector.

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

CARB Resolution 07-54

CARB Resolution 07-54 establishes 25,000 metric tons of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold was just over 0.005 percent of California's total inventory of GHG emissions for 2004.

17 California Code of Regulations Section 95350 et seq.

The purpose of this regulation is to achieve GHG emission reductions by reducing SF_6 emissions from gas-insulated switchgear. Owners of such switchgear must not exceed maximum allowable annual emissions rates, reduced each year until 2020, after which annual emissions must not exceed 1.0 percent. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least three years. Additionally, by June 1 each year, owners also must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year.

In September 2020, CARB adopted Resolution 20-28, to amend the current regulation to phase out acquisition of SF_6 in gas-insulated switchgear in stages between 2025 and 2033. Under this resolution, CARB will be developing a timeline for phasing out SF_6 equipment in California and creating incentives to encourage owners to replace SF_6 equipment. The Resolution has not yet been approved by the California Office of Administrative Law.

California Advanced Clean Trucks Program

In June 2020, CARB approved the Advanced Clean Trucks regulation, which requires manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. In addition, the regulation requires company and fleet reporting for large employers and fleet owners with 50 or more trucks. CARB estimates that implementation of this regulation will reduce GHG emissions by a total of approximately 29 MMT of CO_2e between 2020 and 2040 relative to the business-as-usual baseline. By 2040, emissions are expected to be reduced by approximately four percent annually compared to the business as usual forecast (CARB 2020g). By 2045, all new trucks sold in California must be zero-emission.

California Environmental Quality Act

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

Local Regulations

SJVAPCD

SJVAPCD policies for addressing GHG emissions in CEQA are documented in their 2009 *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (2009b). In the guidance, SJVAPCD recommends a performance-based standards approach that determines significance based on project design elements that would reduce GHG emissions. This approach would pre-quantify the emissions reduced and would negate the need to quantify project emissions. Implementation of SJVAPCD approved Best Performance Standards (BPS) would demonstrate that a new project would have a less than cumulatively significant impact. For land use development projects, examples of BPS include zero net energy buildings, energy efficient appliances, and reducing vehicle miles travelled (SJVAPCD 2009c). The combination of approved operation BPS must sum to at least a 29 percent reduction. For projects not implementing BPS, projects can comply with an approved GHG plan or reduce GHG emissions by at least 29 percent. Note that SJVAPCD states that implementing BPS is "expected to equal or exceed 29 percent reduction in GHG emissions from stationary sources and development projects" (SJVAPCD 2009c). However, SJVAPCD guidance does not address SB 32 goals nor CARB's latest 2017 Scoping Plan.

Kern County General Plan

The goals, policies, and implementation measures in the Energy Element of the Kern County General Plan (County of Kern 2009) applicable to GHG, as related to the project, are provided below.

- **Policy 1**: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.
- **Policy 3**: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

5 Greenhouse Gas Impact Analysis

5.1 CEQA Checklist

The following GHG analysis is provided to support environmental documentation pursuant to CEQA. The conclusions of the GHG study are summarized in Table 13

Table 13 Summary of GHG Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Mitigation Measures
Greenhouse Gas Emissions		
Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No Impact	None

5.2 Methodology

Direct GHG Emissions

Construction of the Project would generate temporary GHG emissions primarily from the use of on-site construction equipment, vehicles transporting construction workers to and from the project site, and heavy-duty trucks used to export earth materials off-site. Site preparation and grading typically generate the greatest emissions from grading equipment and soil hauling. Operational activities of the Project would generate GHG emissions primarily from operation of maintenance equipment on-site and vehicles transporting employees to and from the Project site. Emissions associated with decommissioning of the Project were conservatively assumed to be equivalent to construction of the Project give the type of equipment required for decommissioning. However, equipment and vehicles used at the decommissioning stage would most likely be cleaner. Operational direct GHG emissions accounted for employee vehicle travel and testing of the emergency generator. The analysis relied on CARB's on-road vehicle emission factor model (EMFAC2017), CARB's 2017 Off-Road Equipment Inventory Model (OFFROAD2017), and emission factors obtained from the USEPA AP-42 *Compilation of Air Pollutant Emissions Factors* (2006). The EMFAC2017 model was used to develop CO_2, CH_4, and N_2O emission estimates. These emissions results were used to calculate CO_2e.

Short-term and annual Project emissions were estimated based on equipment and construction schedule assumptions developed from similar solar projects and using appropriate emission factors. The Association of Environmental Professionals (AEP) recommends that total construction GHG emissions resulting from a project be amortized over the project's estimated lifetime and added to GHG emissions (AEP 2016). The construction and decommissioning GHG emissions were summed together and divided over a 35-year lifetime.

Indirect GHG Emissions Associated with Water Use

The use of water in California can involve substantial energy consumption, depending on the source of the water and the use location relative to the source. Major portions of the state rely on imported water from the State Water Project (California Aqueduct), the Central Valley Project, the Colorado River Aqueduct, the All-American Canal, and similar large-scale water distribution systems. Moving water across the state involves considerable energy consumption for pumping and delivering the water to the use location. The use of groundwater can involve substantial energy consumption to pump water from deep aquifers. In addition to the energy consumption associated with wholesale water supply, energy is consumed during local treatment for potable use and for local delivery. Most of the energy associated with water supply is provided by electricity, which is generated from a variety of sources, including fossil-fueled power plants that produce GHGs. Consequentially, the use of water for dust control and grading compaction during construction and photovoltaic panel washing during operations results in indirect GHG emissions.

As described in Section 1.4, *Construction Activities*, the Project may require water during construction for dust suppression. During operation the Project would require water for solar PV panel washing and facilities at the O&M buildings.

During operation the Project would require water for solar PV panel washing and facilities at the O&M buildings. Based on the energy factors in CPUC's *Embedded Energy in Water Studies* (CPUC 2010) and assuming minimal treatment and delivery, it was estimated that each acre-foot of water requires 650 kilowatt-hours of electricity for Project Site delivery. The quantity of GHG emissions associated with the 649 kilowatt-hours was based on the emissions profile for PG&E provided in the California Emissions Estimator Model (CalEEMod; CAPCOA 2021).

Displaced Emissions

Operation of the Project would create renewable energy over the planned 35-year Project lifetime. This energy would displace GHG emissions that would otherwise be produced by existing power generation resources, including coal and natural gas/other non-renewables. The Project has the capacity to generate approximately 70 MW of electricity at peak sun exposure. Annual energy generation was estimated based on solar radiation at the Project site and annual operational time.[9] The Project is assumed to displace a fraction of existing current annual power generated by fossil-fuels. Displaced GHG emissions were estimated assuming that generated solar energy would displace energy generated from fossil fuels in the California market and does not include the approximate 34 percent of the California electricity generated by non-combustion sources (CEC 2021). Refer to Appendix A for detailed calculations related to the Project's annual energy generation.

5.3 Significance Thresholds

Most individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be

[9] Photovoltaic cell capacity is rated in terms of mega or kilowatts and indicates the amount of instantaneous power produced when operating at peak sun exposure. Total amount of electricity produced in measured in watt-hours and is dependent on operational time. Operational time of a solar panel is defined by the amount of time that the photovoltaic cells are actively converting solar energy into power, which depends on solar radiation. Solar radiation is the measure of energy emitted from the sun and varies daily depending on the time of day, season, local landscape, and geography.

cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

For future projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, consistency with a regional GHG reduction plan, or consistency with statewide regulations adopted to reduce GHG emissions. A project may not have an impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 Cal. Code Regs. §15064[h][3]).

Section 15064.4 of the *CEQA Guidelines* recommends that lead agencies quantify GHG emissions of projects and consider several other factors that may be used in the determination of significance of GHG emissions from a project, including the extent to which the project may increase or reduce GHG emissions; whether a project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a plan for the reduction or mitigation of GHG emissions.

CEQA Guidelines Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, as long as any threshold chosen is supported by substantial evidence (*CEQA Guidelines* Section 15064.7[c]).

According to *CEQA Guidelines* Section 15183.5, projects can tier off of a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project’s consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project’s GHG emissions (AEP 2016). However, the County has not developed a qualified GHG reduction plan that can used for project-level evaluation.

The next best approach would be to use a quantitative threshold from the local air district. However, the SJVAPCD has not adopted a numeric threshold to address project-level GHG emissions, and SJVAPCD’s BPS approach does not include measures to address the 2030 target established by SB 32.. Therefore, a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted CARB 2017 Scoping Plan is presumed to have less than significant GHG impacts.

5.4 Impact Analysis

The Project would generate GHG emissions directly and indirectly during construction, routine operational and maintenance activities, and decommissioning activities. Most project emissions would be generated during construction and decommissioning activities.

Threshold 1:	Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1 THE PROPOSED PROJECT WOULD GENERATE TEMPORARY AND LONG-TERM INCREASES IN GHG EMISSIONS, BUT SUCH EMISSIONS WOULD BE OFFSET BY THE PROJECT'S PRODUCTION OF ELECTRICITY FROM A RENEWABLE SOURCE, WHICH WOULD DECREASE GHG EMISSIONS GENERATED FROM NONRENEWABLE SOURCES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Construction and Decommissioning

Table 14 presents total estimated emissions from construction activities from onsite and offsite emission sources as a combined Project. The estimated total GHG emissions during Project construction would be approximately 1,781 MT CO_2e over the 16-month construction period. It was conservatively assumed that decommissioning of the Project would use the same type and amount of equipment in a similar schedule to construction, therefore decommissioning of the Project was estimated to generate equivalent emissions as construction. This is a conservative estimate because on-road vehicles and off-site equipment would continue to improve in fuel efficiency have increasingly reduced emissions, as such decommissioning emissions in 35 years would likely be substantially lower than construction emissions. Estimated construction and decommissioning emissions related to the Project were amortized over 35 years, the anticipated Project lifetime, would be approximately 102 MT CO_2e per year. Additional details on calculations can be found in Appendix A.

Table 14 Estimated Construction Emissions of Greenhouse Gases

	Emissions Source (MT CO_2e)				
Year	Off-Road	On-site Mobile	Off-site Mobile	Indirect GHG Emissions from Water Use	Total (MT CO_2e)
2023	1,604	95	34	7	1,740
2024	26	8	5	2	41
Total Construction	1,630	103	53	9	1,781
Total Decommissioning	1,630	103	53	9	1,781
Construction and Decommissioning	3,260	206	106	18	3,562
Amortized Emissions (35-year life)	*93*	*6*	*3*	*1*	*102*

Note: numbers have been rounded to nearest metric tons

Operation

Table 15 summarizes operational emissions associated with the Project. Operation and maintenance of the Project would generate GHG emissions largely through motor vehicle trips to and from the Project site; on-site maintenance activities involving portable equipment and maintenance vehicles; energy use associated with water consumption; daily operation of the O&M building; and the testing and maintenance of the emergency diesel generator. As shown in Table 15, the Project is estimated to emit 70 MT CO_2e per year during operation. The total construction and decommissioning GHG emissions, amortized over 35 years, was added to the annual estimated operational emissions to estimate annual GHG emissions generated by the Project. As shown in Table 15, the Project would emit a total of 172 MT CO_2e per year, throughout the operational life of the Project (assumed 35 years).

Although the Project would emit a total of 172 MT CO_2e per year, the Project would offset GHG emissions by replacing fossil-fueled power plants. Based on the Project's anticipated annual electricity generation and the GHG emissions generated due to fossil-fuel combustion to generate the same level of electricity, the Project has the potential to displace 33,868 MT CO_2e per year. Therefore, the net generation of annual GHG emissions would be -33,690 MT CO_2e, as shown in Table 15.[10] As such, the project would not exceed any regional GHG thresholds and would be consistent with state GHG reduction plans such as SB 32. Further, the Project would result in an overall lifetime reduction of approximately 1,179,360 MT CO_2e and would therefore be regionally beneficial. [11]

Additionally, the proposed on-site substation may feature circuit breakers that contain SF_6 gas, used as an insulator and an arc suppressor in the breakers. SF_6 is inert and non-toxic and is encapsulated in the breaker assembly. SF_6 is a GHG with substantial global warming potential because of its chemical nature and long residency time within the atmosphere. However, under normal conditions, it would be completely contained in the equipment and SF_6 would be released only in the unlikely event of a failure, leak, or crack in the circuit breaker housing. In addition, the equipment would comply with CARB's *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulations. CARB's current regulations require that switchgear not exceed a maximum allowable annual SF_6 emissions rate of 1.0 percent. All circuit breakers used for this Project would have a manufacturer-guaranteed SF_6 leakage rate of 0.5 percent per year or less per International Electro-technical Commission (IEC) standards. In compliance with CARB regulations, the Applicant would be required to regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6 and submit an annual report to CARB. With compliance with existing CARB regulations, the amount of SF_6 that could be released by the Solar Facility equipment would be minimal. Therefore, GHG impacts from the construction and operation of the Project would be less than significant.

Table 15 Estimated Annual Operational Greenhouse Gas Emissions (MT CO_2e)

	Off-Road	On-site Mobile	Off-site Mobile	Indirect GHG Emissions from Water Use	O&M Building	Emergency Generator	Total MT (CO_2e)
Operation	0	1	30	<1	1	38	70
Amortized Construction and Decommissioning Emissions	93	6	3	1	—	—	102
Annual Total	**93**	**13**	**33**	**1**	**1**	**38**	**172**
Annual Displaced GHG Emissions (MT/year)							**33,868**
Net Annual GHG Emissions (MT/year)							**- 33,696**

MT = metric ton; CO_2e = carbon dioxide equivalent.

Note: Numbers have been rounded to nearest metric tons. The CalEEMod model was used to compute GHG emissions for the O&M building and emergency generator emissions.

[10] 172 MT CO_{2e} – 33,868 MT CO_2e = -33,696

[11] 33,696 MT CO_2e * 35 years = 1,179,360 MT CO_2e over the lifetime of the project

Threshold 2:	Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact GHG-2 THE PROPOSED PROJECT WOULD BE CONSISTENT WITH THE 2017 SCOPING PLAN AND. THIS IMPACT WOULD NOT LEAD TO ANY INCREASED POTENTIAL TO CONFLICT WITH ANY APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS. NO IMPACTS WOULD OCCUR.

Consistency with GHG Reduction Plans and Policies

The Project would also be consistent with the renewable energy goals under the 2017 Scoping Plan Update and SB 100. The Solar Facility is consistent with the following specific electricity goals outlined in the 2017 Scoping Plan Update:

- Per SB 350, increase the Renewable Portfolio Standard to 50 percent of retail sales by 2030 and ensure grid reliability.
- Continue to increase use of distributed renewable generation at state facilities where space allows.
- Continue GHG reductions through participation in the California Independent System Operator (CAISO) Energy Imbalance Market.
- Per SB 350, efforts to evaluate, develop, and deploy regionalization of the grid and integration of renewables via regionalization of the CAISO should continue while maintaining the accounting accuracy and rigor of California's GHG policies.

As discussed in Section 4.2, *Regulatory* Setting, SB 100 accelerated the state's RPS Program by increasing California's procurement of electricity from renewable sources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. The Project would generate approximately 157 GWh of electricity each year or approximately 5,482 GWh over the Project's 35-year lifetime. This additional solar-generated energy would be added to the power grid and used in place of electricity generated by fossil-fuel sources, and thus would directly support energy goals under SB 100 and the 2017 Scoping Plan Update. Replacement of fossil-fuel sources with renewable solar energy would also displace GHG emissions, ultimately off-setting any GHG emissions produced by construction, decommissioning, and operation of the Project. Additionally, the Project would be consistent with the County's General Plan Resource goals to encourage solar development to conserve fossil fuels and improve air quality (Kern County 2009). Therefore, the Project would be consistent with state and regional plans to reduce GHG emissions. No impacts would occur.

6 Mitigation Measures

As discussed, a construction and operation of the Project would not generate emissions that would exceed applicable SJVAPCD thresholds or conflict with applicable regional plans. Regardless, due to the earthmoving activities associated with construction of the Project there is an increased potential for exposure of nearby residents and on-site workers to Valley Fever airborne spores, if they are present. Recommendation AQ-1 would reduce health risks associated with the potential exposure to Valley Fever spores.

AQ-1 Minimize Personnel and Public Exposure to Valley Fever

Including the following in the Fugitive Dust Control Plan to be prepared for this Project as discussed in Mitigation Measure AQ-1:

- Equipment, vehicles, and other items shall be cleaned thoroughly of dust before they are moved off site to other work locations.
- Wherever possible, grading, and trenching work shall be phased so that earth-moving equipment works well ahead or down-wind of workers on the ground.
- The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
- If a water truck runs out of water before dust is dampened sufficiently, ground workers exposed to dust are to leave the area until a full truck resumes water spraying.
- All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a High Efficiency Particulate Arrestance (HEPA) filtered air system.
- N95 respirators shall be provided to onsite workers for the duration of the construction period.
- Workers shall receive training to recognize the symptoms of Valley Fever and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Community Development Department within 24 hours of the training session.
- A Valley Fever informational handout shall be provided to all on-site construction personnel. The handout shall provide, at a minimum, information regarding the symptoms, health effects, preventative measures, and treatment.

7 Conclusions

7.1 Air Quality

As discussed in Section 3, *Air Quality Impact Analysis*, simultaneous construction and decommissioning of the Project parcel would not exceed the significance thresholds established by the County or SJVAPCD. If construction activities occurred subsequently at Project parcels, the Project would also not generate emissions during construction or decommissioning that would exceed the County's significance threshold. However as previously discussed, construction would be subject to the SJVAPCD's Rule 9510 and be required to reduce NO_x emissions by 20 percent as well as reducing PM_{10} exhaust by 45 percent. The Project would also implement dust control measures that align with the SJVAPCD Rule 8021 dust control measures. In addition, the Project construction and decommissioning would not result in health risk impacts that would exceed the SJVAPCD carcinogenic and non-carcinogenic risk thresholds. The analyses further documented that Project operation would not result in adverse long-term regional impacts. Lastly, the Project would not result in excessive exposure to CO hotspots, and exposure to Valley Fever would be reduced with Mitigation Measure AQ-1, which is recommended to reduce health impacts to the surrounding communities and on-site workers. Valley Fever spores are naturally occurring in the soil of Kern County and fungal spores can become airborne during ground disturbances, such as construction work. Reduction of dust disturbance or stabilization of dust will reduce the number of fungal spores becoming airborne and thus reduce the incidences of individuals becoming infected.

7.2 GHG

As discussed in Section 5, *Greenhouse Gas Impact Analysis*, the Project would not generate GHG emissions that would exceed local and regional significance thresholds and is consistent with applicable GHG reduction plans. Further, due to being a renewable solar energy project, the Project would reduce the local, regional, and statewide cumulative GHG emissions and offset a portion of the incremental cumulative GHG impacts of other projects. The Project would support Kern County's General Plan Resource Goal to promote solar development to conserve fossil fuels and would be regionally beneficial for air quality.

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Appendix A

Bulk Emissions Calculations

Jasmine Solar PV (492 Acres, 70 MW)

Emissions Factors Used in Analysis

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Exhaust Emissions Factors for Equipment in		**Kern (San Joaquin Valley Air Basin)**													
Equipment [1, 2, 3]	**Fuel Type**	**Consumption (gallons/hr)**	**Actual HP**	**Modeled HP**	**HC lbs/hr**	**ROG lbs/hr**	**TOG lbs/hr**	**CO lbs/hr**	**NOx lbs/hr**	**CO_2 lbs/hr**	**PM_{10} lbs/hr**	**$PM_{2.5}$ lbs/hr**	**otal PM lbs/h**	**SO_X lbs/hr**	**NH_3 lbs/hr**
Air Compressor	diesel	0.97	78	75	7.51E-03	9.09E-03	1.08E-02	1.46E-01	1.08E-01	2.18E+01	1.35E-03	1.24E-03	2.58E-03	2.01E-04	1.78E-04
Concrete Truck	diesel	4.14	300	300	3.06E-02	3.70E-02	4.40E-02	2.29E-01	2.61E-01	9.33E+01	1.06E-02	9.78E-03	2.04E-02	8.61E-04	7.61E-04
Crane	diesel	2.73	231	238	3.44E-02	4.16E-02	4.96E-02	2.86E-01	4.37E-01	6.14E+01	2.06E-02	1.89E-02	3.95E-02	5.67E-04	5.01E-04
Crawler Tractor	diesel	2.84	212	192	4.34E-02	5.25E-02	6.25E-02	3.82E-01	5.24E-01	7.35E+01	2.87E-02	2.64E-02	5.51E-02	6.79E-04	6.00E-04
Drum Roller Compactor	diesel	2.24	134	138	1.56E-02	1.88E-02	2.24E-02	2.96E-01	1.93E-01	5.04E+01	9.74E-03	8.96E-03	1.87E-02	4.66E-04	4.12E-04
Excavator	diesel	2.56	158	163	1.81E-02	2.19E-02	2.60E-02	2.63E-01	2.24E-01	5.75E+01	1.09E-02	1.00E-02	2.09E-02	5.31E-04	4.69E-04
Forklift	diesel	1.54	89	85	2.96E-02	3.58E-02	4.26E-02	2.44E-01	3.02E-01	3.46E+01	1.84E-02	1.70E-02	3.54E-02	3.19E-04	2.82E-04
Generator Set	diesel	1.13	84	75	1.31E-02	1.59E-02	1.89E-02	2.33E-01	1.24E-01	3.12E+01	5.40E-03	4.97E-03	1.04E-02	2.88E-04	2.55E-04
Grader	diesel	3.16	187	175	4.26E-02	5.16E-02	6.14E-02	4.58E-01	4.70E-01	7.10E+01	2.58E-02	2.38E-02	4.96E-02	6.55E-04	5.79E-04
Off-highway Truck	diesel	4.90	402	358	3.53E-02	4.27E-02	5.08E-02	3.51E-01	3.04E-01	1.10E+02	1.23E-02	1.13E-02	2.37E-02	1.02E-03	8.99E-04
Other Construction Equipment	diesel	3.26	172	175	3.17E-02	3.84E-02	4.57E-02	4.39E-01	3.78E-01	7.33E+01	1.97E-02	1.82E-02	3.79E-02	6.77E-04	5.98E-04
Roller	diesel	2.24	134	138	1.56E-02	1.88E-02	2.24E-02	2.96E-01	1.93E-01	5.04E+01	9.74E-03	8.96E-03	1.87E-02	4.66E-04	4.12E-04
Rough-terrain Forklift	diesel	0.86	100	100	9.55E-03	1.16E-02	1.38E-02	1.33E-01	1.09E-01	1.93E+01	6.67E-03	6.13E-03	1.28E-02	1.78E-04	1.57E-04
Rough-terrain Forklift (big)	diesel	1.16	130	138	1.11E-02	1.34E-02	1.60E-02	1.66E-01	1.21E-01	2.61E+01	6.81E-03	6.27E-03	1.31E-02	2.41E-04	2.13E-04
Rubber-tired Loader	diesel	2.76	203	192	2.61E-02	3.16E-02	3.76E-02	2.85E-01	2.80E-01	6.21E+01	1.39E-02	1.28E-02	2.66E-02	5.73E-04	5.07E-04
Scraper	diesel	2.27	100	100	4.42E-02	5.35E-02	6.36E-02	3.87E-01	5.47E-01	5.12E+01	4.04E-02	3.72E-02	7.76E-02	4.72E-04	4.18E-04
Skid Steer	diesel	1.14	65	63	8.78E-03	1.06E-02	1.26E-02	1.58E-01	1.18E-01	2.56E+01	3.61E-03	3.33E-03	6.94E-03	2.36E-04	2.09E-04
Surface Equipment/Pavers	diesel	1.40	100	100	7.33E-03	8.87E-03	1.06E-02	1.93E-01	1.24E-01	3.14E+01	4.43E-03	4.07E-03	8.50E-03	2.90E-04	2.57E-04
Trencher (big)	diesel	5.87	300	300	6.46E-02	7.82E-02	9.30E-02	3.96E-01	8.83E-01	1.32E+02	3.69E-02	3.40E-02	7.09E-02	1.22E-03	1.08E-03
Trencher (small)	diesel	1.82	78	75	5.73E-02	6.93E-02	8.25E-02	3.43E-01	5.75E-01	4.10E+01	3.98E-02	3.66E-02	7.65E-02	3.77E-04	3.35E-04
Vibratory Post Driver	diesel	2.83	158	163	3.31E-02	4.01E-02	4.77E-02	3.16E-01	4.03E-01	6.36E+01	2.27E-02	2.09E-02	4.36E-02	5.87E-04	5.19E-04

1. Emissions factors for diesel and gasoline equip developed from the CARB 2017 Off-Road Inventory Model for year 2023. Emissions based on the equipment within the model horsepower bin nearest the applicant provided horsepower rating; emissions between bins were averaged if actual horsepower was equally between two model horsepower bins. Note that emission factors from the 2017 Inventory Model are substantially lower than in the previous OFFROAD2011 model because of changed assumptions by CARB regarding load factors, hours of use, fuel consumption, and equipment population.

2. "Other Construction Equipment" used for vibratory post driver.

On-Road Mobile Vehicle Emission Factors Used in Analysis

Source: Kern (SJV), EMFAC 2017 Annual Average, Year 2023

Running Emissions, grams/mile

Vehicle Type	Speed	ROG	TOG	CO	NO_X	SO_X	PM_{10} (g/mile) Exhaust	PM_{10} (g/mile) Tire Wear	PM_{10} (g/mile) Brake	$PM_{2.5}$ * (g/mile) Exhaust	$PM_{2.5}$ * (g/mile) Tire Wear	$PM_{2.5}$ * (g/mile) Brake	CO_2	CH_4	N_2O
LDA	10	0.036161093	0.052326551	1.09888443	0.056007092	0.005023044	0.006136015	0.008000002	0.036750011	0.005647876	0.002	0.015750005	507.779707	0.0094056	0.00726439
LDA	55	0.006232302	0.009062887	0.520637795	0.032525916	0.002494781	0.001085136	0.008000002	0.036750011	0.000999722	0.002	0.015750005	252.183154	0.0016401	0.0041157
LDT2	10	0.06402088	0.09297309	1.550377538	0.121228089	0.006280132	0.006321813	0.008000002	0.036750011	0.005815661	0.002	0.015750005	634.801362	0.01564287	0.010661526
LDT2	55	0.011355976	0.016548899	0.737070036	0.069794353	0.003119845	0.001112801	0.008000002	0.036750011	0.001024239	0.002	0.015750005	315.343246	0.0027842	0.006071481
Weighted Average of LDA and LDT2	10	0.043481455	0.063006726	1.217517542	0.073144386	0.005353353	0.006184835	0.008000002	0.036750011	0.005691963	0.002	0.015750005	541.155575	0.01104449	0.008157012
Weighted Average of LDA and LDT2	55	0.007578585	0.011029892	0.577506947	0.04231847	0.002659021	0.001092406	0.008000002	0.036750011	0.001006164	0.002	0.015750005	268.778929	0.00194072	0.004629596
LHD2	10	0.390251423	0.452692871	1.964754954	1.218179825	0.013398718	0.035205125	0.010558795	0.089180026	0.033629687	0.0026397	0.038220011	1387.23981	0.02287081	0.124015468
LHD2	55	0.053345806	0.061464009	0.402218911	1.786420304	0.005608178	0.014570653	0.011347059	0.089180026	0.013936156	0.00283676	0.038220011	586.454006	0.00287445	0.071411689
MHDT	10	0.060311094	0.074734698	0.67282672	4.849768571	0.019683048	0.006869465	0.012000003	0.130340037	0.006558535	0.003	0.055860016	1804.72398	0.00192163	0.283677478
MHDT	55	0.009168865	0.011593835	0.140643411	0.672797538	0.008208714	0.009496767	0.012000003	0.130340037	0.009083454	0.003	0.055860016	862.41787	0.00099069	0.115866913
MDV	10	0.083551991	0.120678403	1.807627842	0.152290446	0.007974669	0.00620023	0.008000002	0.036750011	0.005711316	0.002	0.015750005	806.657558	0.01965332	0.01494901
MDV	55	0.014760227	0.021446969	0.837817801	0.089002081	0.003956809	0.0011332	0.008000002	0.036750011	0.001045584	0.002	0.015750005	400.200902	0.00351289	0.00833484
HHDT	10	0.087691265	0.099865503	1.299600927	10.16765367	0.026671997	0.011955146	0.035864741	0.061509827	0.011437961	0.00896619	0.026361355	2823.16754	0.00409104	0.443737789
HHDT	55	0.013692244	0.015605079	0.099283354	1.246505925	0.010478948	0.023162655	0.02000297	0.061739975	0.022160643	0.00500074	0.026459989	1109.15986	0.00064481	0.174312462

Start Emissions, grams/trip

Vehicle Type	ROG	TOG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
LDA	0.203516327	0.22282405	2.120575424	0.174146078	0.000523981	0.001807005	0.001661515	52.94977041	0.046651844	0.02459116
LDT2	0.317557302	0.347684879	2.71865921	0.282133144	0.000684773	0.001878147	0.001726927	69.19831304	0.067949546	0.031747598
Weighted Average of LDA and LDT2	0.233481426	0.255632145	2.277726306	0.202520468	0.00056623	0.001825698	0.001678702	57.21919364	0.052247971	0.026471567
LHD2	0.037251773	0.040786002	0.498217258	0.172172778	6.64867E-05	9.12647E-05	8.39145E-05	6.718668021	0.007502888	0.012957674
MHDT	0.02004615	0.021948011	0.436791428	1.985899358	3.70845E-05	4.45764E-05	4.09864E-05	3.747492985	0.003791827	0.002825652
MDV	0.398438988	0.436236878	3.105849468	0.345350212	0.000854017	0.001814024	0.001668127	86.30090339	0.08092793	0.034585304
HHDT	2.1544E-07	2.35879E-07	0.000468125	2.250779437	3.77922E-08	2.90449E-08	2.67058E-08	0.003819006	4.12635E-08	4.61289E-08

	Additional ROG Emissions				**Additional TOG Emissions**			
Vehicle Type	Diurnal (g/vehicle/day)	Hot Soak (g/trip)[1]	Resting Losses (g/vehicle/day)[2]	Running Losses (g/trip)	Diurnal (g/vehicle/day)	Hot Soak (g/trip)[1]	Resting Losses (g/vehicle/day)[2]	Running Losses (g/trip)
LDA	0.290225515	0.095113857	0.215534871	0.212014936	0.290225515	0.095113857	0.215534871	0.212014936
LDT2	0.512592601	0.142771686	0.39625099	0.479713071	0.512592601	0.142771686	0.39625099	0.479713071
Weighted Average of LDA and LDT2	0.348654091	0.107636299	0.263019351	0.282354576	0.348654091	0.107636299	0.263019351	0.282354576
LHD2	0.021270542	0.038093122	0.009624236	0.228154441	0.021270542	0.038093122	0.009624236	0.228154441
MHDT	0.006218725	0.009365545	0.002701828	0.051008216	0.006218725	0.009365545	0.002701828	0.051008216
MDV	0.593422724	0.170117186	0.489765791	0.52926991	0.593422724	0.170117186	0.489765791	0.52926991
HHDT	2.99333E-06	6.48694E-06	1.62702E-06	2.51021E-05	2.99333E-06	6.48694E-06	1.62702E-06	2.51021E-05

[1] Hotsoak emissions occur during the first hour the vehilce is parked after normal operation

[2] Diurnal/resting losses have to do with the vehicle population on site as it "rests".

Note: Mobile emission factors are weighted averages based on the vehicle population per fuel type, vehicle class and speed obtained from EMFAC2017.

Mobile Vehicle Fuel Economy Used in Energy Analysis

Vehicle Type	Average Fuel Consumption (miles/gallon)	Average Fuel Consumption (Diesel) (miles/gallon)	% Of VMT that is diesel	Average Fuel Consumption (Gasoline) (miles/gallon)	% Of VMT that is gasoline
LDA	31.04830672	47.83664506	1.0%	30.87819914	99.0%
LDT2	24.94382431	35.47277302	0.7%	24.69676562	100.0%
LHD2	13.23539124	15.90792671	69.0%	7.27712224	31.0%
MHDT	9.126293988	9.585650181	90.3%	4.841983318	9.7%
MDV	40.79914333	25.62983375	85.4%	19.37636918	97.6%
HHDT	7.101933906	7.102152304	100.0%	4.461356965	0.0%

Additional Greenhouse Gas Emissions Factors

GHG Global Warming Potential [1,2]

CO_2:	1	GWP
CH_4:	30	GWP
N_2O:	273	GWP

Note: 1 ton (short, US) = 0.90718474 metric ton.

1. Based on 100 Yr GWP from IPCC Sixth Assessment, 2021
2. No climate-carbon feedbacks (CC fb) included

Indirect Water Supply GHG Emissions

State Water Project/ Central Valley Project	428	kwh/acre foot [1]
Local Supply (Groundwater)	906-1,990	kwh/million gallons [2]
Local Treatment	44	kwh/million gallons [3]
Local Delivery	45-956	kwh/million gallons [4]
Factor used:	***1993***	***kwh/MG*** [5]
	649	***kwh/AF***

Note: 1 million gallons (MG) = 3.07 acre feet (AF)

1. Embedded Energy in Water Studies, 2010a: Study 1, Figure 3.4: Dos Amigos Pumping Plant. (p.62-63)
2. Embedded Energy in Water Studies, 2010b:Study 2, Table 4-6: Central Valley energy intensity range for groundwater (main water supply)
3. Embedded Energy in Water Studies, 2010b:Study 2, Table 4-6: Lowest Statewide energy intensity value used because no Central Valley specific values, but minimal treatment of water observed in Central Valley agencies
4. Embedded Energy in Water Studies, 2010b:Study 2, Table 4-6: Statewide energy intensity values assuming booster pump use on moderate terrain
5 Energy intensity (EI) value used for analysis = the average supply EI + minimal water treatment EI + average local delivery EI

Pacific Gas and Electric Company Electricity Generation [1]

CO_2:	204.000	lbs/MWH
CH_4:	0.033	lbs/MWH
N_2O:	0.004	lbs/MWH
	9.3477E-05	MT/kwh

Indirect GHG Factor: *0.061 MT/Acre Foot*

Note: 1 Metric Tons (MT) = 2204.62 lbs

1. California Emissions Estimator Model User Guide, Appendix D, CAPCOA 2021

Paved roads - Emission Factor Derivation Table

$$E_{ext} = [\, k\,(sL)^{0.91} \times (W)^{1.02} \,]\,(1 - P/4N)$$

where:
E=particulate emissions factor (lb/VMT)
k = particle size multiplier
sL = road surface silt loading (g/m^2)
W = average vehicle weight class (tons)
P = # of "wet" days with at least 0.01 inch of precipitation
N = # of days in averaging period (default 365 for annual)

		On-road Vehicles		On-Site Vehicles[6]	
Parameter	**Unit**	**PM10**	**PM2.5**	**PM10**	**PM2.5**
Mean Vehicle Weight[1]	tons	2.4	2.4	3.4	3.4
k factor[2]	lb/VMT	0.0022	0.000330096	0.0022	0.000330096
Silt Loading, sL[3]	g/m^2	0.02265	0.02265	1.6	1.6
precipitation, P[4]	days	50	50	50	50
Averaging period, N[5]	days	365	365	365	365
Uncontrolled Emission factor, E	**lb/VMT**	**0.0002**	**0.0000**	**0.0114**	**0.0017**

NOTES

1. Assumption based on the mix of all vehicles (not just project vehicles) driving on paved roads to site. CA Statewide MVW = 2.4 tons (CARB 7.9, March 2021) [https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf]
2. AP-42 Table 13.2.1-1 recommends 0.0022 lb/VMT for PM10. Paved dust PM2.5 was estimated using CARB's speciation profile #471 where PM2.5 factor is estimated to be 15% of PM10 (0.0686/0.4572) per CARB's Miscellanous Process Methodology 7.9 Entrained Road Travel, Paved Road Dust (March 2021) [https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf]

3. Consistent with the Traffic Assessment, a majority (~85%) of construction vehicles would access the site from Interstate 5 with the use of county roads including Copus Road and Old River Road. Access from State Route 166 would make up approximately 10% of construction vehicle trips. I-5 is classified as a freeway, SR-166 is classifed as a minor aterial (i.e. Major road via CARB's definition), Copus Road and Old River Road are classified as a major collector in the *Kern County General Plan Circulation Element*. Based on estimated trip mileage provided by SF Jasmine LLC and the distance from Highway I-5 or SR-166 to the site on Copus and Old River Road, it was estimated the 35% of travel during construction would occur on a major collector road (i.e. Old RIver Road and Copus Road); 10% would occur on a Minor Arterial Road (i.e. SR-166); and 55% would occur on a freeway (I-5). Therefore the silt loading factor was weighted assuming 55% travel on I-5, 10% travel on SR-166, and 35% travel on Copus/Old River Road. For the on-site vehicles, the rural paved road silt loading factor of 1.6 was used from the CARB Miscellaneous Process Methodology Section 7.9 Table 3.b (CARB 7.9, MArch 2021) [https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf]
4. CARB 7.9, March 2021: Table 5. Kern County in the San Joaquin Valley Air Basin receives 50 days of percipitation
5. Default numbr of days in the annual averaging period
6. Assumption based on onsite fleet mix of heavy, medium and light duty trucks (https://www.epa.gov/emission-standards-reference-guide/vehicle-weight-classifications-emission-standards-reference-guide). Based on daily mileage traveled by on-site vehicles, 96% of miles traveled by on-site vehicles will be done by LDT (approx 3 tons), and 4% of travel will occur by MHDT or HHDT (approx 13 tons).

On-site Unpaved roads - Emission Factor Derivation Table

$$E = \frac{1.8\,(s/12)^{1.8}\,(S/30)^{0.5}}{(M/0.5)^{0.2}} - C$$

$$E_{ext} = E[(365 - P)/365]$$

where:
E=particulate emissions factor (lb/VMT)
k = particle size multiplier for particle size range and units of interest
s = surface material silt content (%)
M= surface material mositure content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980s vehicle fleet exhust, brake wear and tire wear
P = # of "wet" days with at least 0.01 inch of precipitation

		On-site Vehicles	
Parameter	**Unit**	**PM10**	**PM2.5**
Particle size, k[1]	lbs/VMT	1.8	0.18
Silt content, s[2]	%	6.4	6.4
Surface moisture content, M[3]	%	6.515	6.515
Mean vehicle speed, S[4]	mph	15	15
Exhaust emission factor, C[5]	lbs/VMT	0.00047	0.00036
precipitation, P[6]	days	50	50
Uncontrolled Emission factor, E	**lb/VMT**	**0.21162**	**0.02**
Control efficiency for watering[7]	%	0.55	0.55
Controlled Emission factor, E	**lb/VMT**	**0.11**	**0.01**
Control efficiency for dust palliative[8]	%	0.84	0.84
Controlled Emission factor, E	**lb/VMT**	**0.04**	**0.00**

NOTES

1. Based on access road dominated by light duty vehicles and for emergency vehicles per PD. Obtained from WRAP Fugitive Dust Handbook (September 2006)

2. Per the Project description "Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions." CalFire requires roads be designed and maintained to support at least 75,000 lbs and provide an aggregate base. As such it is assumed that all on-site roads will have at least a gravel/crushed limestone base. Silt content was obtained from the WRAP Fugitive Dust Handbook (Table 6-2) for gravel/crushed limestone roads.
3. AP-42 recommends range from 0.03-13 % for unpaved roads (Table 13.2.2-3), therefore average mositure content was applied.
4.SJVAPCD-recommended measure for construction sites where all on-site construction vehicles shall not exceed 15 mph on any unpaved surface on the construction site.
5. AP-42 recommended emission factor for 1980's vehicles fleet exhaust, brake wear and tire wear for unpaved roads (Table 13.2.2.-4.)
6. CARB 7.9, March 2021: Table 5. Kern County in the San Joaquin Valley Air Basin receives 50 days of percipitation; the uncontrolled emission factor takes into account natural mitigation from rain. Controlled emission factors do not include precipitation.
7. MRI, April 2001. Particulate Emission Measurements from Controlled Construction Activities, EPA/600/R-01/031.
8. Per CARB certification for Soil Sement®

CARB Source: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf
USEPA Source: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-fifth-edition-volume-i-chapter-13-miscellaneous-0
WRAP Source: https://textarchive.ru/c-2653351.html

Jasmine Solar PV (492 Acres, 70 MW)

On-Site Equipment Combustion Emissions [1]

Phase 1 - Site Prep and Grading		# of Days in Phase :	60													
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO_2e
Crawler Tractor	212	1	5	60	300	13.02	15.76	18.75	114.69	157.19	22,057.94	8.61	7.92	0.18	0.20	10.0
Grader	187	3	8	60	1,440	61.36	74.25	88.36	659.59	676.26	102,217.78	37.19	34.22	0.83	0.94	46.4
Off-highway Truck	402	4	4	60	960	33.84	40.95	48.74	337.05	291.54	105,722.99	11.83	10.88	0.86	0.98	48.0
Drum Roller Compactor	134	2	8	60	960	14.94	18.07	21.51	284.49	185.40	48,395.77	9.35	8.60	0.39	0.45	22.0
Rubber-tired Loader	203	2	8	60	960	25.09	30.36	36.13	273.74	268.50	59,617.49	13.31	12.24	0.49	0.55	27.0
Rough-terrain Forklift (big)	130	2	8	60	960	10.66	12.90	15.35	159.17	115.96	25,092.36	6.54	6.02	0.20	0.23	11.4
Skid Steer	65	4	8	60	1,920	16.85	20.39	24.27	303.51	226.19	49,088.39	6.94	6.38	0.40	0.45	22.3
					AVG EXHAUST EMISSIONS PER DAY	**2.93**	**3.55**	**4.22**	**35.54**	**32.02**	**6,871.02**	**1.56**	**1.44**	**0.06**	**0.06**	**3.12**
					TOTAL	**175.77**	**212.68**	**253.11**	**2,132.24**	**1,921.03**	**412,192.73**	**93.77**	**86.27**	**3.36**	**3.81**	**186.97**

Phase 2 - Tracker Foundations		# of Days in Phase :	103													
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO_2e
Air Compressor	78	1	8	103	823	6.18	7.48	8.90	120.41	88.94	17,937.33	1.11	1.02	0.15	0.17	8.1
Generator Set	84	3	8	103	2,468	32.42	39.23	46.69	575.79	304.90	77,024.82	13.32	12.26	0.63	0.71	34.9
Off-highway Truck	402	8	4	103	3,291	116.04	140.41	167.09	1,155.60	999.56	362,478.83	40.55	37.31	2.96	3.35	164.4
Other Construction Equipment	172	1	2	103	206	6.53	7.90	9.40	90.27	77.82	15,076.00	4.06	3.74	0.12	0.14	6.8
Rough-terrain Forklift	100	2	8	103	1,645	15.72	19.02	22.64	218.22	179.16	31,682.83	10.97	10.09	0.26	0.29	14.4
Rubber-tired Loader	203	1	8	103	823	21.50	26.02	30.97	234.64	230.14	51,100.70	11.41	10.49	0.42	0.47	23.2
Vibratory Post Driver	158	8	8	103	6,582	218.05	263.84	314.00	2,080.90	2,649.46	418,549.68	149.59	137.63	3.42	3.86	189.9
Skid Steer	65	6	8	103	4,936	43.34	52.44	62.40	780.45	581.63	126,227.29	17.84	16.42	1.03	1.17	57.3
					AVG EXHAUST EMISSIONS PER DAY	**4.47**	**5.41**	**6.44**	**51.11**	**49.70**	**10,696.98**	**2.42**	**2.23**	**0.09**	**0.10**	**4.85**
					TOTAL	**459.78**	**556.34**	**662.09**	**5,256.27**	**5,111.62**	**1,100,077.48**	**248.86**	**228.95**	**8.98**	**10.16**	**498.99**

Phase 3 - Underground Cabling		# of Days in Phase :	86													
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO_2e
Excavator	158	2	8	86	1,371	24.77	29.97	35.67	360.99	307.08	78,871.98	14.93	13.73	0.64	0.73	35.8
Trencher (big)	300	1	8	86	686	44.29	53.59	63.78	271.34	605.39	90,506.02	25.32	23.29	0.74	0.84	41.1
Off-highway Truck	402	4	4	86	1,371	48.35	58.50	69.62	481.50	416.48	151,032.85	16.90	15.55	1.23	1.39	68.5
Drum Roller Compactor	134	2	8	86	1,371	21.34	25.82	30.73	406.42	264.86	69,136.82	13.36	12.29	0.56	0.64	31.4
Rubber-tired Loader	203	1	8	86	686	17.92	21.68	25.81	195.53	191.78	42,583.92	9.51	8.75	0.35	0.39	19.3
Skid Steer	65	2	8	86	1,371	12.04	14.57	17.33	216.79	161.56	35,063.14	4.96	4.56	0.29	0.32	15.9
					AVG EXHAUST EMISSIONS PER DAY	**1.97**	**2.38**	**2.83**	**22.55**	**22.72**	**5,451.51**	**0.99**	**0.91**	**0.04**	**0.05**	**2.47**
					TOTAL	**168.71**	**204.13**	**242.94**	**1,932.57**	**1,947.16**	**467,194.72**	**84.96**	**78.17**	**3.81**	**4.31**	**211.92**

Phase 4 -Mechanical Installation		# of Days in Phase :	103													
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO_2e
Air Compressor	78	4	8	103	3,291	24.72	29.91	35.60	481.66	355.78	71,749.31	4.43	4.07	0.59	0.66	32.5
Generator Set	84	2	8	103	1,645	21.61	26.15	31.12	383.86	203.26	51,349.88	8.88	8.17	0.42	0.47	23.3
Off-highway Truck	402	4	4	103	1,645	58.02	70.20	83.55	577.80	499.78	181,239.42	20.28	18.66	1.48	1.67	82.2
Other Construction Equipment	172	1	2	103	206	6.53	7.90	9.40	90.27	77.82	15,076.00	4.06	3.74	0.12	0.14	6.8
Rough-terrain Forklift	100	3	8	103	2,468	23.58	28.53	33.96	327.33	268.74	47,524.24	16.45	15.14	0.39	0.44	21.6
Rubber-tired Loader	203	3	8	103	2,468	64.51	78.06	92.90	703.91	690.42	153,302.11	34.22	31.48	1.25	1.42	69.5
Skid Steer	65	6	8	103	4,936	43.34	52.44	62.40	780.45	581.63	126,227.29	17.84	16.42	1.03	1.17	57.3
					AVG EXHAUST EMISSIONS PER DAY	**2.36**	**2.85**	**3.39**	**32.53**	**26.03**	**6,286.16**	**1.03**	**0.95**	**0.05**	**0.06**	**2.85**
					TOTAL	**242.31**	**293.20**	**348.93**	**3,345.27**	**2,677.44**	**646,468.24**	**106.16**	**97.67**	**5.28**	**5.97**	**293.23**

Phase 5- Electrical Installation		# of Days in Phase :	129													
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO_2e
Air Compressors	78	2	8	129	2,057	15.45	18.69	22.25	301.04	222.36	44,843.32	2.77	2.55	0.37	0.41	20.3
Off-highway Truck	402	6	4	129	3,085	108.79	131.63	156.65	1,083.37	937.09	339,823.91	38.02	34.98	2.77	3.14	154.1
Rubber-tired Loader	203	2	8	129	2,057	53.76	65.05	77.42	586.59	575.35	127,751.76	28.52	26.24	1.04	1.18	57.9
Rough-terrain Forklift	100	3	8	129	3,085	29.48	35.67	42.45	409.16	335.92	59,405.30	20.56	18.92	0.48	0.55	26.9
Trencher (small)	78	1	8	129	1,028	58.94	71.31	84.87	353.10	591.50	42,175.82	40.97	37.69	0.34	0.39	19.1
Crane	231	1	1	129	129	4.42	5.35	6.37	36.74	56.22	7,893.04	2.65	2.43	0.06	0.07	3.6
Excavator	158	2	8	129	2,057	37.16	44.96	53.50	541.49	460.62	118,307.96	22.39	20.60	0.97	1.09	53.7
					AVG EXHAUST EMISSIONS PER DAY	**2.40**	**2.90**	**3.45**	**25.76**	**24.73**	**5,758.08**	**1.21**	**1.12**	**0.05**	**0.05**	**2.61**
					TOTAL	**307.99**	**372.67**	**443.51**	**3,311.49**	**3,179.06**	**740,201.10**	**155.87**	**143.40**	**6.04**	**6.83**	**335.75**

Phase 6- PG&E Substation	# of Days in Phase :	336												
Equipment	HP Estimate	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NOX lbs	CO2 lbs	PM10 lbs	PM2.5 lbs	NH3 lbs	SOX lbs	MT of CO2e
Crane	231	1	8	11	88	3.03	3.67	4.36	25.15	38.49	5,403.25	1.81	1.67	0.04	0.05	2.5
Excavator	158	1	8	48	384	6.94	8.39	9.99	101.10	86.00	22,087.83	4.18	3.85	0.18	0.20	10.0
Forklift	89	1	8	48	384	11.35	13.73	16.34	93.76	115.83	13,273.51	7.08	6.51	0.11	0.12	6.0
Generator Set	84	1	8	288	2,304	30.26	36.62	43.58	537.49	284.62	71,901.82	12.44	11.44	0.59	0.66	32.6
Water Truck	300	1	8	144	1,152	38.17	46.18	54.96	364.22	463.73	73,258.40	26.18	24.09	0.60	0.68	33.2
Surface Equipment/Pavers	100	1	8	11	88	0.65	0.78	0.93	16.96	10.90	2,767.07	0.39	0.36	0.02	0.03	1.3
Grader	187	1	8	22	176	7.50	9.08	10.80	80.63	82.67	12,495.37	4.55	4.18	0.10	0.12	5.7
Roller	134	1	8	22	176	2.74	3.31	3.94	52.17	34.00	8,874.04	1.71	1.58	0.07	0.08	4.0
Concrete Truck	300	1	4	22	88	2.69	3.25	3.87	20.19	23.01	8,207.14	0.94	0.86	0.07	0.08	3.7
Scraper	100	1	8	22	176	7.78	9.41	11.20	68.18	96.19	9,008.94	7.11	6.54	0.07	0.08	4.1
					AVG EXHAUST EMISSIONS PER DAY	**0.33**	**0.40**	**0.48**	**4.05**	**3.68**	**676.42**	**0.20**	**0.18**	**0.01**	**0.01**	**0.31**
					TOTAL	**111.09**	**134.42**	**159.97**	**1,359.85**	**1,235.42**	**227,277.37**	**66.39**	**61.08**	**1.86**	**2.10**	**103.09**

Annual

Year	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO2e
2023	1,437.88	1,739.84	2,070.55	16,997.73	15,762.88	3,536,592.29	739.41	680.26	28.87	32.65	1,604.17
2024	27.77	33.61	39.99	339.96	308.86	56,819.34	16.60	15.27	0.46	0.52	25.77
Total	1,465.66	1,773.45	2,110.55	17,337.69	16,071.74	3,593,411.64	756.01	695.53	29.33	33.18	1,629.94

Max Daily

Year	HC lbs	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	NH_3 lbs	SO_X lbs	MT of CO2e
2023	7.05	8.53	10.15	84.89	61.73	18,172.17	3.43	3.16	0.15	0.17	8.24
2024	0.33	0.40	0.48	4.05	3.68	676.42	0.20	0.18	0.01	0.01	0.31
Total Max Daily	7.05	8.53	10.15	84.89	61.73	18,172.17	3.43	3.16	0.15	0.17	8.24

NOTES

MT = Metric Tons

1. Equipment list assumptions were prepared using Eland 1 Solar EIR as recommended by the Applicant
2. Off-high Truck additional emissions during transit operations calculated with onsite mobile emissions
3. Emissions for 2023 calculated using following asssumptions related to construction days/schedule: 60 days of Phase 1, 103 days of Phase 2, 86 days of Phase 3, 103 days of Phase 4, 129 days of Phase 5, and 252 days of Phase 6
4. Emissions for 2024 calculated using following asssumptions related to construction days/schedule: 84 days of Phase 6

Jasmine Solar PV (492 Acres, 70 MW)

Fugitive Dust Emissions During Construction On-site (excludes vehicular traffic from vendor vehicles)

				Natural Soil					
Phase 1 - Site Prep and Grading		**Number of Days**	**60**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Daily Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Mobile Construction Equipment (0.5 mph) [1]	0.71	4.04	0.404	2.85	0.29	1.5	0.1	0.7	0.1
Stationary Construction Equipment (0.25 mpd) [2]	0	4.04	0.404	0.00	0.00	0.0	0.0	0.0	0.0
Off-highway Truck[3]	480	2.13	0.21	1,020.25	101.96	532.0	0.2	234.1	0.1
Total Pounds Per day				**17.05**	**1.70**	**8.89**	**0.01**	**3.91**	**0.00**
Total	**481**			**1,023.10**	**102.25**	**533.47**	**0.38**	**234.75**	**0.17**

				Natural Soil					
Phase 2 - Tracker Foundations		**Number of Days**	**103**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Mobile Construction Equipment (0.5 mph) [1]	0.9	4.04	0.404	3.44	0.34	1.8	0.2	0.8	0.1
Stationary Construction Equipment (0.25 mpd) [2]	206	4.04	0.404	830.97	83.10	433.3	43.3	192.6	19.3
Off-highway Truck[3]	1,645	2.13	0.21	3,498.00	349.58	1824.0	0.2	802.6	0.1
Total Pounds Per day				**42.13**	**4.21**	**21.97**	**0.43**	**9.68**	**0.19**
Total	**1,852**			**4,332.41**	**433.02**	**2,259.04**	**43.74**	**995.95**	**19.44**

				Natural Soil					
Phase 3 - Underground Cabling		**Number of Days**	**86**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Mobile Construction Equipment (0.5 mph) [1]	0.6	4.04	0.404	2.34	0.23	1.2	0.1	0.5	0.1
Stationary Construction Equipment (0.25 mpd) [2]	64	4.04	0.404	259.68	25.97	135.4	13.5	60.2	6.0
Off-highway Truck[3]	686	2.13	0.21	1,457.50	145.66	760.0	0.2	334.4	0.1
Total Pounds Per day				**20.06**	**2.01**	**10.46**	**0.16**	**4.61**	**0.07**
Total	**750**			**1,719.52**	**171.86**	**896.61**	**13.90**	**395.13**	**6.18**

				Natural Soil					
Phase 4 -Mechanical Installation		**Number of Days**	**103**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Mobile Construction Equipment (0.5 mph) [1]	1.0	4.04	0.404	3.97	0.40	2.1	0.2	0.9	0.1
Stationary Construction Equipment (0.25 mpd) [2]	0	4.04	0.404	0.00	0.00	0.0	0.0	0.0	0.0
Off-highway Truck[3]	823	2.13	0.21	1,749.00	174.79	912.0	0.2	401.3	0.1
Total Pounds Per day				**17.05**	**1.70**	**8.89**	**0.00**	**3.91**	**0.00**
Total	**824**			**1,752.97**	**175.19**	**914.05**	**0.44**	**402.21**	**0.20**

				Natural Soil					
Phase 5- Electrical Installation		**Number of Days**	**129**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Mobile Construction Equipment (0.5 mph) [1]	0.71	4.04	0.404	2.86	0.29	1.5	0.1	0.7	0.1
Stationary Construction Equipment (0.25 mpd) [2]	100	4.04	0.404	405.75	40.57	211.6	21.2	94.0	9.4
Off-highway Truck[3]	1,543	2.13	0.21	3,279.38	327.73	1710.0	0.2	752.4	0.1
Total Pounds Per day				**28.69**	**2.87**	**14.96**	**0.17**	**6.59**	**0.07**
Total	**1,644**			**3,687.99**	**368.59**	**1,923.02**	**21.54**	**847.11**	**9.57**

				Natural Soil					
Phase 6- PG&E Substation		**Number of Days**	**336**	**No Additional Control[4]**		**With Water Control [5]**		**With Palliative Control[6]**	
Vehicle Type	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor [4]**	**$PM_{2.5}$ lbs/mile factor [4]**	**PM10 lbs**	**PM2.5 lbs**	**PM10 lbs**	**PM2.5 lbs**	**PM10 lbs**	**PM2.5 lbs**
Mobile Construction Equipment (0.5 mph) 1	0.28	4.04	0.404	1.15	0.11	0.6	0.1	0.3	0.0
Stationary Construction Equipment (0.25 mpd) 2	15	4.04	0.404	59.59	5.96	31.1	3.1	13.8	1.4
Off-highway Truck[3]	332	2.13	0.21	705.79	70.53	368.0	0.2	161.9	0.1
Total Pounds Per day				**2.28**	**0.23**	**1.19**	**0.01**	**0.52**	**0.00**
Total	**347**			**766.53**	**76.61**	**399.69**	**3.40**	**176.01**	**1.51**

Annual

Year	No Additional Control[4]		With Water Control [5]		With Palliative Control[6]	
	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs
2023	13,090.89	1,308.36	6,825.96	82.56	3,007.15	36.69
2024	191.63	19.15	99.92	0.85	44.00	0.38
Total	**12,515.99**	**1,250.90**	**6,526.19**	**80.01**	**2,875.15**	**35.55**

Max Daily

Year	No Additional Control[4]		With Water Control [5]		With Palliative Control[6]	
	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs
2023	68.08	6.80	35.50	0.34	15.64	0.15
2024	2.28	0.23	1.19	0.01	0.52	0.00
Max Daily	**68.08**	**6.80**	**35.50**	**0.34**	**15.64**	**0.15**

Notes:

considered earth moving (i.e. grader) are accounted for seperately due to a specific operations [http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-a2020-4-0.pdf?sfvrsn=6#:~:text=California%20Emissions%20Estimator%20Model%20%28CalEEMod%29%20calculates%20both%20the,In%20addition%2C%20it%20calculates%20GHG%20emissions%20associated%20with]

2. Trencher, pile driver, excavator, and crane work primarily in place and are not considered mobile in this analysis.
3. Off-highway trucks are assumed to each travel 2 miles per day on site based on information provided by SF Jasmine LLC
4. Uncontrolled emission factors based on silt content of local soil, onsite fleet mix, and and typical construction activites frpm AP-42, Table 13.2.2-2
5. Emission factors are reduced via water control by 55% efficiency per MRI, April 2001. Particulate Emission Measurements from Controlled Construction Activities, EPA/600/R-01/031.
6. Emission factors are reduced via palliative control by 84% efficiency per CARB certification for Soil Sement®
7. Emissions based on assumption of % of activity occuring on compacted/scraper road where base uncontrolled emission factors are 2.27 and 0.227 for PM_{10} and $PM_{2.5}$, respectively.
8. Emissions based on assumption of % of activity occuring on gravel road where base uncontrolled emission factors are 1.76 and 0.176 for PM_{10} and $PM_{2.5}$, respectively.

Particulates from Grading [1]

Grader Parameters

Travel Speed (S):		7.1	mph
Hours Operating:		8	
Acres/ 8hr-day:		0.5	
Width of Grading Blade (ft)[2]:		12	**Water Controlled[3]**
PM-10 Emissions Factor (lbs/ VMT)	E = 0.6 * 0.051 * (S)^(2.0)	*1.54255*	*0.6*
PM-2.5 Emissions Factor (lbs/VMT)	E = 0.031*0.04*(S)^(2.5)	*0.2*	*0.1*

Location	Acreage	VMT[4]	Fugitive Dust From Grading		Mitigated Fugitive Dust From Grading[3]	
			PM 10 (lbs)	PM2.5 (lbs)	PM 10 (lbs)	PM2.5 (lbs)
Site	492	338.25	521.7661845	56.33851069	203.488812	21.97201917
TOTAL	492	338.25	521.7661845	56.33851069	203.488812	21.97201917

Year	Fugitive Dust From Grading		Mitigated Fugitive Dust From Grading[3]	
	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs
2023	521.77	56.34	203.49	21.97
2024	0.00	0.00	0.00	0.00
Total	**521.77**	**56.34**	**203.49**	**21.97**

Year	Fugitive Dust From Grading		Mitigated Fugitive Dust From Grading[3]	
	PM_{10} lbs	$PM_{2.5}$ lbs	PM_{10} lbs	$PM_{2.5}$ lbs
2023	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00
Max Daily	**0.00**	**0.00**	**0.00**	**0.00**

NOTES

1. Fugitive dust emissions from grading the project site were estimated using the methodology described in Section 11., Western Surface Coal Mining of the USEPA AP-42 and used in CalEEMod 2020.4.0 (CAPCOA 2021).
2. Blade width of grading equipment is default width of 12 feet based on Caterpillar's 140 Motor Grader. (CalEEMod Appendix A, 2017)
3. Assumes use of water to control dust reduces dust by 61% based on per 3.2 hour watering interval of general construction; test series 701 reproted in WRAP Fugitive Dust Handbook, September 2006
4. VMT is estimated based on grading area and blade width where VMT = Acres graded/Blade Width * (43560 sqft/acre)/(5280 ft/mile)
5. No grading in 2024

Jasmine Solar PV (492 Acres, 70 MW)

On-site Mobile Emissions (max 15 mph)

Activity 1 - Site Preparation and Grading				No. Days in Phase:	60											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	10	60	10	5,999	3.29	3.29	24.10	24.10	8,487.15	0.68	0.31	0.08	0.30	0.30	4	1,269.50	125.33	661.95	65.35	235.36	23.24
Vendors (Trucks)																					
Water Trucks (HHDT)	1	60	50	3,000	0.58	0.66	8.59	67.53	18,669.04	0.72	0.31	0.18	0.03	2.93	9	634.75	62.66	330.98	32.68	117.68	11.62
T6 (MHDT)	2	60	0.10	12	0.03	0.03	0.13	0.65	48.73	0.00	0.00	0.00	0.00	0.01	0.023	2.54	0.25	1.32	0.13	0.47	0.05
AVG EMISSIONS PER DAY					**0.06**	**0.07**	**0.55**	**1.54**	**453.49**	**0.02**	**0.01**	**0.00**	**0.01**	**0.05**	**0.21**	**31.79**	**3.14**	**16.57**	**1.64**	**5.89**	**0.58**
TOTAL				**9,010**	**3.90**	**3.98**	**32.83**	**92.29**	**27,204.92**	**1.40**	**0.62**	**0.26**	**0.32**	**3.24**	**12.75**	**1,906.78**	**188.24**	**994.25**	**98.16**	**353.51**	**34.90**

Activity 2 - Tracker Foundations				No. Days in Phase:	103											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	4	103	10	4,114	2.26	2.26	16.53	16.53	5819.76	0.46	0.22	0.06	0.20	0.20	2.67	870.51	85.94	453.91	44.81	161.39	15.93
Vendors (Trucks)																					
Water Trucks (HHDT)	1	103	50	5,142	0.99	1.13	14.73	115.77	32,004.07	1.24	0.53	0.30	0.05	5.03	15	1,088.14	107.42	567.39	56.01	201.74	19.92
T6 (MHDT)	2	103	0.10	21	0.04	0.04	0.23	1.12	83.53	0.01	0.00	0.00	0.00	0.01	0.040	4.35	0.43	2.27	0.22	0.81	0.08
AVG EMISSIONS PER DAY					**0.03**	**0.03**	**0.31**	**1.30**	**368.61**	**0.02**	**0.01**	**0.00**	**0.00**	**0.05**	**0.17**	**19.09**	**1.88**	**9.95**	**0.98**	**3.54**	**0.35**
TOTAL				**5,163**	**3.29**	**3.43**	**31.49**	**133.42**	**37,907.37**	**1.71**	**0.75**	**0.36**	**0.25**	**5.25**	**17.85**	**1,963.00**	**193.79**	**1,023.57**	**101.05**	**363.93**	**35.93**

Activity 3 - Underground Cabling				No. Days in Phase:	86											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	3	86	10	2,571	1.41	1.41	10.33	10.33	3637.35	0.29	0.13	0.04	0.13	0.13	1.67	544.07	53.71	283.69	28.01	100.87	9.96
Vendors (Trucks)																					
Water Trucks (HHDT)	1	86	20	1,714	0.33	0.38	4.91	38.85	10,668.03	0.41	0.18	0.10	0.02	1.68	5	362.71	35.81	189.13	18.67	67.25	6.64
T6 (MHDT)	2	86	0.10	17	0.04	0.04	0.19	0.93	69.61	0.01	0.00	0.00	0.00	0.01	0.033	3.63	0.36	1.89	0.19	0.67	0.07
AVG EMISSIONS PER DAY					**0.02**	**0.02**	**0.18**	**0.58**	**167.74**	**0.01**	**0.00**	**0.00**	**0.00**	**0.02**	**0.08**	**10.62**	**1.05**	**5.54**	**0.55**	**1.97**	**0.19**
TOTAL				**1,731**	**1.78**	**1.83**	**15.43**	**50.11**	**14,374.99**	**0.71**	**0.31**	**0.14**	**0.14**	**1.82**	**6.75**	**910.41**	**89.88**	**474.71**	**46.87**	**168.79**	**16.66**

Activity 4 - Mechanical Installation				No. Days in Phase:	103											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	8	103	10	8,227	4.51	4.51	33.05	33.05	11639.52	0.93	0.43	0.12	0.41	0.41	5.34	1,741.02	171.88	907.82	89.62	322.78	31.87
Vendors (Trucks)																					
Water Trucks (HHDT)	1	103	50	5,142	0.99	1.13	14.73	115.77	32,004.07	1.24	0.53	0.30	0.05	5.03	15	1,088.14	107.42	567.39	56.01	201.74	19.92
T6 (MHDT)	2	103	0.10	21	0.04	0.04	0.23	1.12	83.53	0.01	0.00	0.00	0.00	0.01	0.040	4.35	0.43	2.27	0.22	0.81	0.08
AVG EMISSIONS PER DAY					**0.05**	**0.06**	**0.47**	**1.46**	**425.20**	**0.02**	**0.01**	**0.00**	**0.00**	**0.05**	**0.20**	**27.55**	**2.72**	**14.37**	**1.42**	**5.11**	**0.50**
TOTAL				**5,163**	**5.55**	**5.69**	**48.01**	**149.95**	**43,727.13**	**2.18**	**0.96**	**0.42**	**0.46**	**5.45**	**20.52**	**2,833.51**	**279.73**	**1,477.48**	**145.86**	**525.32**	**51.86**

Activity 5 - Electrical Installation				No. Days in Phase:	129											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NOX lbs	CO2 lbs	PM10 lbs	PM2.5 lbs	SOX lbs	CH4 lbs	N2O lbs	MT of CO2e	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	5	129	10	6,428	3.53	3.53	25.82	25.82	9093.37	0.73	0.34	0.09	0.32	0.32	4.17	1,360.17	134.28	709.23	70.02	252.17	24.90
Vendors (Trucks)																					
Water Trucks (HHDT)	1	129	20	2,571	0.50	0.57	7.37	58.27	16,002.04	0.62	0.27	0.15	0.02	2.52	8	544.07	53.71	283.69	28.01	100.87	9.96
T6 (MHDT)	2	129	0.10	26	0.05	0.06	0.29	1.40	104.42	0.01	0.00	0.00	0.00	0.02	0.050	5.44	0.54	2.84	0.28	1.01	0.10
AVG EMISSIONS PER DAY					**0.03**	**0.03**	**0.26**	**0.67**	**196.03**	**0.01**	**0.00**	**0.00**	**0.00**	**0.02**	**0.09**	**14.86**	**1.47**	**7.75**	**0.76**	**2.75**	**0.27**
TOTAL				**2,597**	**4.08**	**4.15**	**33.47**	**85.49**	**25,199.83**	**1.35**	**0.61**	**0.24**	**0.34**	**2.85**	**11.79**	**1,909.68**	**188.53**	**995.76**	**98.31**	**354.05**	**34.95**

Activity 6 - PG&E Substation				No. Days in Phase:	336											Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
Vehicle Type	No. Units/Trips per Day	Days Operating	Total Miles Traveled per Unit per Day [1]	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NOX lbs	CO2 lbs	PM10 lbs	PM2.5 lbs	SOX lbs	CH4 lbs	N2O lbs	MT of CO2e	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs	Fugitive Dust (PM10) lbs	Fugitive Dust (PM2.5) lbs
On-site Worker Truck																					
Light Duty Truck (LDT2)	6	336	10	20,160	11.06	11.06	80.99	80.99	28521.57	2.28	1.06	0.28	1.00	1.00	13.07	4,266.22	421.18	2,224.53	219.61	790.94	78.08
Vendors (Trucks)																					
Water Trucks (HHDT)	1	336	20	6,720	1.30	1.48	19.25	152.30	41,825.63	1.62	0.69	0.40	0.06	6.57	20	1,422.07	140.39	741.51	73.20	263.65	26.03
T6 (MHDT)	5	336	0.10	168	0.35	0.37	1.87	9.15	682.31	0.06	0.02	0.01	0.01	0.12	0.324	35.55	3.51	18.54	1.83	6.59	0.65
AVG EMISSIONS PER DAY					**0.04**	**0.04**	**0.30**	**0.72**	**211.40**	**0.01**	**0.01**	**0.00**	**0.00**	**0.02**	**0.10**	**17.04**	**1.68**	**8.88**	**0.88**	**3.16**	**0.31**
TOTAL				**6,888**	**12.72**	**12.91**	**102.11**	**242.44**	**71,029.51**	**3.95**	**1.77**	**0.68**	**1.07**	**7.69**	**33.18**	**5,723.84**	**565.08**	**2,984.57**	**294.65**	**1,061.18**	**104.76**

Annual

Year	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
												Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
2,023	28.14	28.76	237.82	693.09	201,686.36	10.32	4.59	1.93	2.32	24.37	94.53	13,816.28	1,363.99	7,204.20	711.22	2,561.49	252.88
2,024	3.18	3.23	25.53	60.61	17,757.38	0.99	0.44	0.17	0.27	1.92	8.30	1,430.96	141.27	746.14	73.66	265.30	26.19
Total	**31.32**	**31.99**	**263.34**	**753.70**	**219,443.74**	**11.31**	**5.03**	**2.10**	**2.59**	**26.29**	**102.83**	**15,247.24**	**1,505.26**	**7,950.34**	**784.89**	**2,826.79**	**279.07**

Max Daily

Year	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
												Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
2,022	0.14	0.15	1.21	3.43	1,000.36	0.05	0.02	0.01	0.01	0.12	0.47	70.07	6.92	36.53	3.61	12.99	1.28
2,023	0.04	0.04	0.30	0.72	211.40	0.01	0.01	0.00	0.00	0.02	0.10	17.04	1.68	8.88	0.88	3.16	0.31
Total Max Daily	**0.14**	**0.15**	**1.21**	**3.43**	**1,000.36**	**0.05**	**0.02**	**0.01**	**0.01**	**0.12**	**0.47**	**70.07**	**6.92**	**36.53**	**3.61**	**12.99**	**1.28**

Operational			No. Work days in Year:	250	No. Workers:	1													
Vehicle Type	Trips per Day	No. of Daily Trips (one-way)	Daily VMT	Annual VMT	ROG lbs	TOG lbs	CO lbs	NO_X lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_X lbs	CH_4 lbs	N_2O lbs	MT of CO_2e	Un-mitigated		Mitigated-Watering		Mitigated-Palliatives	
																Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs	Fugitive Dust (PM_{10}) lbs	Fugitive Dust ($PM_{2.5}$) lbs
Pickup Trucks (LDT2)	2.0	2	4	1,000	0.14	0.21	3.44	0.27	1,400.11	0.11	0.05	0.01	0.04	0.02	0.639	111.49	11.30	60.85	6.30	25.29	2.79
				Avg Daily Emissions	**0.00**	**0.00**	**0.01**	**0.00**	**5.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.45**	**0.05**	**0.24**	**0.03**	**0.10**	**0.01**
				Annual Total Emissions	**0.14**	**0.21**	**3.44**	**0.27**	**1,400.11**	**0.11**	**0.05**	**0.01**	**0.04**	**0.02**	**0.64**	**111.49**	**11.30**	**60.85**	**6.30**	**25.29**	**2.79**

NOTES

1 lb = 453.59 grams; MT = metric tons

1. Data provided by SF Jasmine LLC indicates that on-site worker vehicles will travel 10 miles on site daily. The access driveway from either Copus Rd or Old River Rd would include construction of turn pockets for exit and entry to facilitate the delivery of equipment and personnel to the proposed Facility during construction and operations. As such it is assumed that delivery vehicles will not travel on-site, and workers commuter vehicles are assumed to not be driven on the project site accept for accessing the on-site parking lots will be at or near the main access site for the project.
2. Emission calculations include running emissions; start emissions, hotsoak, and running losses for a single trip; diurnal, and resting loss emissions per vehicle.
3. Emissions for 2023 calcualted using the same construction days/schedule as provided by project applicant
4. Emissions for 2024 calculated using the same construction days/schedule asa provided by project applicant
5. Operational trip information based on trip generation information provided GHD, January 2021.

(14 acres of access road = 5.8 miles of 20 ft wide road)

Jasmine Solar PV (492 Acres, 70 MW)

On-Road Mobile Emissions (55 mph)[1]

Activity 1 - Site Preparation and Grading

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	10															
Water Trucks (HHDT)	0.5	0.5	1.0	50	50	0.00	0.00	0.01	0.14	122.29	0.01	0.01	0.00	0.00	0.02	0
T6 (MHDT)	1	1	2	2	4	0.00	0.00	0.00	0.01	7.61	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	8	8	15	2	30	0.00	0.00	0.01	0.08	73.37	0.01	0.00	0.00	0.00	0.01	0
Employee Commute																
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	20	20	40	25	1,000	0.09	0.10	1.47	0.01	0.00	0.10	0.04	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.10**	**0.10**	**1.49**	**0.24**	**203.27**	**0.12**	**0.05**	**0.00**	**0.00**	**0.03**	**0.10**
	No. of Days:	60			*Total Activity 1 Emissions:*	*5.78*	*6.26*	*89.57*	*14.22*	*12,194.45*	*7.26*	*3.09*	*0.12*	*0.01*	*1.91*	*5.77*
		600														

Activity 2 - Tracker Foundations

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	7															
Water Trucks (HHDT)	0.5	0.5	1.0	50	50	0.00	0.00	0.01	0.14	122.29	0.01	0.01	0.00	0.00	0.02	0
T6 (MHDT)	1	1	2	2	4	0.00	0.00	0.00	0.01	7.61	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	5	5	10	2	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
Employee Commute																
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	28	28	55	25	1,375	0.13	0.14	2.03	0.01	0.00	0.14	0.06	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.13**	**0.14**	**2.04**	**0.21**	**178.82**	**0.16**	**0.07**	**0.00**	**0.00**	**0.03**	**0.08**
	No. of Days:	103			*Total Activity 2 Emissions:*	*13.51*	*14.62*	*210.19*	*21.55*	*18,389.52*	*16.12*	*6.78*	*0.17*	*0.01*	*2.87*	*8.70*
		720														

Activity 3 - Underground Cabling

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	7															
Water Trucks (HHDT)	1	0.5	1.0	20.0	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
T6 (MHDT)	1	1	2	2	4	0.00	0.00	0.00	0.01	7.61	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	5	5	10	2	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
Employee Commute																
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	12	12	24	25	600	0.06	0.06	0.88	0.01	0.00	0.06	0.02	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.06**	**0.06**	**0.89**	**0.13**	**105.44**	**0.07**	**0.03**	**0.00**	**0.00**	**0.02**	**0.05**
	No. of Days:	86			*Total Activity 3 Emissions*	*4.94*	*5.35*	*76.67*	*10.89*	*9,036.29*	*6.11*	*2.59*	*0.09*	*0.01*	*1.41*	*4.27*
		600														

Activity 4 - Mechanical Installation

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	8															
Water Trucks (HHDT)	1	0.5	1.0	50.0	50	0.00	0.00	0.01	0.14	122.29	0.01	0.01	0.00	0.00	0.02	0
T6 (MHDT)	1	1	2	2	4	0.00	0.00	0.00	0.01	7.61	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	6	6	12	2	24	0.00	0.00	0.01	0.07	58.70	0.01	0.00	0.00	0.00	0.01	0
Employee Commute																
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	30	30	60	25	1,500	0.14	0.15	2.21	0.01	0.00	0.15	0.06	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.14**	**0.15**	**2.23**	**0.22**	**188.60**	**0.17**	**0.07**	**0.00**	**0.00**	**0.03**	**0.09**
	No. of Days:	103			*Total Activity 4 Emissions:*	*14.73*	*15.94*	*229.23*	*22.68*	*19,395.66*	*17.52*	*7.36*	*0.18*	*0.01*	*3.03*	*9.17*

Activity 5 - Electrical Installation

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	7															
Water Trucks (HHDT)	1	0.5	1.0	20.0	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
T6 (MHDT)	1	1	2	2	4	0.00	0.00	0.00	0.01	7.61	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	5	5	10	2	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
Employee Commute	28															
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	25	25	50	25	1,250	0.12	0.13	1.84	0.01	0.00	0.13	0.05	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.12**	**0.13**	**1.85**	**0.13**	**105.44**	**0.14**	**0.06**	**0.00**	**0.00**	**0.02**	**0.05**
	No. of Days:	129			*Total Activity 5 Emissions:*	*15.26*	*16.51*	*238.20*	*16.33*	*13,554.54*	*17.63*	*7.35*	*0.13*	*0.01*	*2.11*	*6.41*

Activity 6 - PG&E Substation

Vehicle Type[2,3]	Daily Trips To Site[4]	Daily Trips from Site	Total No. of Trips	Average Miles per Trip[5,6]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Within Kern County (SJVAPCD)																
Vendors (Trucks)	9															
Water Trucks (HHDT)	1	0.5	1.0	20	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
T6 (MHDT)	3	3	5	2	10	0.00	0.00	0.00	0.01	19.02	0.00	0.00	0.00	0.00	0.00	0
T7 (HHDT)	5	5	10	2	20	0.00	0.00	0.00	0.05	48.92	0.00	0.00	0.00	0.00	0.01	0
Employee Commute																
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	3	3	6	25	150	0.01	0.02	0.22	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0
					Daily Emissions[7]	**0.02**	**0.02**	**0.23**	**0.14**	**116.85**	**0.03**	**0.01**	**0.00**	**0.00**	**0.02**	**0.06**
	No. of Days:	336			*Total Activity 6 Emissions:*	*5.21*	*5.67*	*78.29*	*45.68*	*39,261.86*	*9.34*	*4.18*	*0.37*	*0.03*	*6.02*	*18.56*

Annual

Year	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
2023	58.13	58.67	1,149.75	853.07	3,370,566.74	66.98	27.19	6.49	0.05	11.32	34.32
2024	1.30	1.42	19.57	11.42	9,815.47	2.33	1.05	0.09	0.01	1.51	4.64
Total	**59.43**	**64.34**	**922.15**	**131.34**	**111,832.31**	**73.98**	**31.37**	**1.06**	**0.07**	**17.35**	**52.88**

Daily

Year	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
2023	0.34	0.36	5.21	0.61	516.33	0.41	0.17	0.00	0.00	0.08	0.24
2024	0.02	0.02	0.23	0.14	116.85	0.03	0.01	0.00	0.00	0.02	0.06
Total Max Daily	**0.34**	**0.36**	**5.21**	**0.61**	**516.33**	**0.41**	**0.17**	**0.00**	**0.00**	**0.08**	**0.24**

Operation[8] **No. Work days in Year:** **250**

Vehicle Type	Trips to Site (Daily)	Trips from Site (Daily)	Total No. of Trips	Average Miles per Trip (one way trip)[9, 10, 11]	Daily Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO_2 lbs	PM_{10} lbs	$PM_{2.5}$ lbs	SO_x lbs	CH_4 lbs	N_2O lbs	MT of CO_2e
Employee Commute																
Light-duty Truck (LDT2)	2	2	4	25	100	0.01	0.02	0.19	0.02	70.15	0.01	0.00	0.00	0.00	0.00	0
Equipment/Material Delivery (T6)	2.0	2.0	4.0	25	100	0.00	0.00	0.03	0.17	190.21	0.03	0.01	0.00	0.00	0.03	0
					Daily Operational On-road Emissions	**0.02**	**0.02**	**0.22**	**0.18**	**260.35**	**0.04**	**0.02**	**0.00**	**0.00**	**0.03**	**0.12**
					Annual Operational On-road Emissions	**4.23**	**4.72**	**55.34**	**45.94**	**65,088.48**	**10.90**	**4.78**	**0.63**	**0.37**	**6.80**	**30.37**

Note: 1 lb = 453.59 grams; MT = metric tons

1. On-road emissions use mileage to determine running emissions from associated with vendor vehicles coming to the site. Starting and additional emissions for vendor vehicles are not included here, and are included with on-site emissions. Emissions from employee commute vehicles assume only one trip to the site per day occur. On-road emissions for employee commute account for running and start emissions for all pollutants, as well as hotsoak, running losses, diurnal, and resting loss ROG and TOG emissions.
2. It is assumed that the vendor trips are done by T6 trucks (MHDT)
3. To more accurately represent the type of vehicles used by employees for commuting it is assumed that 73% of the vehicles are light-duty automobiles (LDA) and 27% is light-duty trucks (LDT2). Percentages were derived from the distribution of gasoline powered LDA and LDT2 VMT from EMFAC2017.
4. Daily trips for construction based on Traffic Assessment prepared by GHD. One-way trip lengths
5. Assuming that HHDT vendor trips travel 50 mile (based on water truck information)
6. Assuming HHDT vendors and employees daily VMT is equal to the total daily mileage provided.
7. On-road emissions are calculated using emission factors that weighted based on the type of fuel used per vehicle class indicated in EMFAC2017 by sub-area.
8. Operational trip information was not available therefore assumptions were made assuming that daily operations would be similar to the Eland Solar project and that there would be 20 full-time employees and have the same operational emissions.
9. Trip data is based on information provided by the project applicant. One sole employee for O&M
10. Assumed that vendors are coming from Bakfersfield, approximately 25 miles from the project site. There would be a total of 4 trips generated (2 to site and 2 from site)
11. Assumed that employees are coming from within a 25 mile radius of the project site from Bakersfield. A total of 4 trips would be generated (2 to site and 2 from site)

Jasmine Solar PV (492 Acres, 70 MW)

Fugitive Dust Emissions on Paved Roads in Kern County [1]

Activity 1 - Site Preparation and Grading					Number of Days	60
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor**	**$PM_{2.5}$ lbs/mile factor**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	50	3,000	0.00017	0.00002	0.50	0.07
T6 (MHDT)	4	240	0.00017	0.00002	0.04	0.01
T7 (HHDT)	30	1,800	0.00017	0.00002	0.30	0.04
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	1,000	59,990	0.00017	0.00002	9.92	1.49
Total Pounds Per Day					**0.18**	**0.03**
Total	**1,084**				**10.75**	**1.61**

Activity 2 - Tracker Foundations					Number of Days	103
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor**	**$PM_{2.5}$ lbs/mile factor**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	50	5,142	0.00017	0.00002	0.85	0.13
T6 (MHDT)	4	411	0.00017	0.00002	0.07	0.01
T7 (HHDT)	20	2,057	0.00017	0.00002	0.34	0.05
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	1,375	141,405	0.00017	0.00002	23.37	3.51
Total Pounds Per Day					**0.24**	**0.04**
Total	**1,375**				**24.63**	**3.70**

Activity 3 - Underground Cabling					Number of Days	86
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor**	**$PM_{2.5}$ lbs/mile factor**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	20	1,714	0.00017	0.00002	0.28	0.04
T6 (MHDT)	4	343	0.00017	0.00002	0.06	0.01
T7 (HHDT)	20	1,714	0.00017	0.00002	0.28	0.04
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	600	51,420	0.00017	0.00002	8.50	1.28
Total Pounds Per Day					**0.11**	**0.02**
Total	**600**				**9.12**	**1.37**

Activity 4 - Mechanical Installation					Number of Days	103
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor**	**$PM_{2.5}$ lbs/mile factor**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	50	5,142	0.00017	0.00002	0.85	0.13
T6 (MHDT)	4	411	0.00017	0.00002	0.07	0.01
T7 (HHDT)	24	2,468	0.00017	0.00002	0.41	0.06
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	1,500	154,260	0.00017	0.00002	25.50	3.83
Total Pounds Per Day					**0.26**	**0.04**
Total	**1,500**				**26.82**	**4.02**

Activity 5 - Electrical Installation					Number of Days	129
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM10 lbs/mile factor**	**PM2.5 lbs/mile factor**	**PM10 lbs**	**PM2.5 lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	20	2,057	0.00017	0.00002	0.34	0.05
T6 (MHDT)	4	411	0.00017	0.00002	0.07	0.01
T7 (HHDT)	20	2,057	0.00017	0.00002	0.34	0.05
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	1,250	128,550	0.00017	0.00002	21.25	3.19
Total Pounds Per Day					**0.17**	**0.03**
Total	**1,250**				**21.99**	**3.30**

Activity 6 - PG&E Substation					Number of Days	336
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM10 lbs/mile factor**	**PM2.5 lbs/mile factor**	**PM10 lbs**	**PM2.5 lbs**
Vendors (Trucks)						
Water Trucks (HHDT)	20	2,057	0.00017	0.00002	0.34	0.05
T6 (MHDT)	10	1,028	0.00017	0.00002	0.17	0.03
T7 (HHDT)	20	2,057	0.00017	0.00002	0.34	0.05
Employee Commute						
Passenger Vehicle (LDA)+ Light-Duty Truck (LDT2)	150	15,426	0.00017	0.00002	2.55	0.38
Total Pounds Per Day					**0.01**	**0.00**
Total	**150**				**3.40**	**0.51**

Annual

Year	PM_{10} lbs	$PM_{2.5}$ lbs
2023	95.86	14.38
2024	0.85	0.13
Total	**96.71**	**14.51**

Max Daily

Year	PM_{10} lbs	$PM_{2.5}$ lbs
2023	0.55	0.08
2024	0.01	0.00
Total	**0.55**	**0.08**

Operational Phase Fugitive Dust Emissions on Paved Roads					Number of Days:	244
Vehicle Type	**Daily Vehicle Miles Traveled**	**Total Vehicle Miles Traveled**	**PM_{10} lbs/mile factor**	**$PM_{2.5}$ lbs/mile factor**	**PM_{10} lbs**	**$PM_{2.5}$ lbs**
Employee Commute						
Light-duty Truck (LDT2)	100	24,400	0.00017	0.00002	4.03	0.61
Equipment/Material Delivery (T6)	100	24,400	0.00017	0.00002	4.03	0.61
				Total Pounds Per Day	**0.03**	**0.00**
				Annual Pounds	**8.07**	**1.21**

Notes:

1. Emission factor calculation presented in "Emission Factors" tab
3. Emissions for 2023 calculated using following asssumptions related to construction days/schedule: 60 days of Phase 1, 103 days of Phase 2, 86 days of Phase 3, 103 days of Phase 4, 129 days of Phase 5, and 252 days of Phase 6
4. Emissions for 2024 calculated using following asssumptions related to construction days/schedule: 84 days of Phase 6

Jasmine Solar PV (492 Acres, 70 MW)

Displaced Energy Production during 35-year Project life

Annual Energy Production		Annual Average Solar Radiation Hours/Day/Year
Grid Size (MW)	70	
Total hrs/year	8,760	
% Operational time [1]	*26%*	6.13
Operational hours/year	2,237	
KWh produced per year	156,621,500	
Assumed Heat Rate (Btu/KWh)	10,000	
Annual Fuel Equivalent (MMBtu)[2]	1,566,215	

CA Power Mix[3]		Annual Fuel Displacement (MMBtu)
Coal[4]	2.74%	42,914
Large Hydro	12.21%	191,235
Natural Gas[4]	37.06%	580,439
Nuclear	9.33%	146,128
Oil	0.01%	157
Other (petroleum coke/waste heat)	0.19%	2,976
Renewables	33.09%	518,261
Unspecified sources of Power	5.36%	83,949
Total	**100.0%**	**1,566,058**

Annual Pollutant Displacement[4]

Natural Gas Turbine Emissions

Pollutant	AP-42 Emission Factor (lb/MMBtu)[5]	Controlled Emission Factor (lb/MMBtu)	Controlled Emissions (lb)	Controlled Emissions (ton)	AP-42 Emission Factor Source Notes[5]
NO_2	0.099	0.099	57,463	28.73	Table 3.1-1, lean premix; Assume SCR Control Efficiency
CO	0.015	0.015	8,707	4.35	Table 3.1-1, lean premix; Assume Ox. Cat. Control Efficiency
PM_{10}	0.0047	0.0047	2,728	1.36	Table 3.1-2a, PM (condensible)
$PM_{2.5}$	0.0019	0.0019	1,103	0.55	Table 3.1-2a, PM (filterable)
SO_2	0.0034	0.0034	1,973	0.99	Table 3.1-2a
CO_2	110	110	63,848,321	31,924.16	Table 3.1-2a

Coal Combustion Emissions

Pollutant	AP-42 Emission Factor (lb/ton)[6]	Controlled Emission Factor (lb/ton)	Emissions (lb)[7]	Emissions (ton)	AP-42 Emission Factor Source Notes[6]
NOx	12	12	21457	10.73	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
CO	0.5	0.5	894	0.45	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
PM_{10}[8]	0.46	0.084	150	0.08	Table 1.1-4, PC-fired dry bottom wall-fired, scrubber control
$PM_{2.5}$[8]	0.12	0.06	107	0.05	Table 1.1-4, PC-fired dry bottom wall-fired, scrubber control
SO_2[9]	2.85	0.57	1019	0.51	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
CO_2	6040	6040	10800097	5,400.05	Table 1.1-20
Total NMHC	0.06	0.06	107	0.05	Table 1.1-19; assumed all hydrocarbons are reactive
CH_4	0.04	0.04	72	0.04	Table 1.1-19
N_2O	0.03	0.03	54	0.03	Table 1.1-19

Total Displaced Emissions Associated With Direct Combustion

Pollutant	tons/year[8]	tons/lifetime (35 years)		
ROG (NMHC)	0	2		
NO_X	39	1,381		
CO	5	168		
PM_{10}	1	50		
$PM_{2.5}$	1	21		
SO_X	1	52		
CO_2E (Metric Ton)	33,868	1,185,365	33,689.57	1179134.895

Notes:

1. Operational time is based on annual average solar radiation hours per day per year (6.13) for the project area. Source: National Renewable Energy Laboratories, U.S. Department of Energy (https://pvwatts.nrel.gov/pvwatts.php)
2. The Project is assumed to displace existing power generation equivalent to the current power mix each year of operation.
3. CA Power Mix assumptions are based on data from the 2020 Total System Electric Generatin Table. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation
4. Combustion of natural gas and coal for power are of the greatest concern related to the generation of criteria pollutants and GHG emissions, therefore only fuel displacement of natural gas and coal due to electricty production from the Solar Scarlet facility are considered in this assessment.
5. EPA Air Pollution Emission Factors AP-42 Section 3.1, Stationary Gas Turbines
6. EPA Air Pollution Emission Factors AP-42 Section 1.1, Bituminous and Subbituminous Coal Combustion
7. Coal characteristics used for conversion: Assumed coal heat content = 24 MMBtu/ton
8. Total particulate matter (CPM-TOT) is expressed in terms of coal ash content therefore emission factor is determined by multiplying % ash content of coal (assumed to be 20% herein) by value listed in Table 1.1-4. Organic fraction of particulate matter is 20% of total CPM-TOT (Table 1.1-5) and listed as controlled emission factor.
9. SO_x emission factor calculated by multiplying the weight percent of sulfur (assumed to be 7.5%) by the value listed in Table 1.1-3
10. CO_2E volumes are in metric tons rather than short (US) tons

Jasmine Solar PV (492 Acres, 70 MW)

Construction Criteria Emissions by Year

Emission Type	Source	Emissions (tons per year) ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$	With Water PM_{10} (tons)	With Water $PM_{2.5}$ (tons)	With Palliative PM_{10} (tons)	With Palliative $PM_{2.5}$ (tons)
2023											
Exhaust	Off Road Construction Equipment	0.9	7.9	0.0	8.5	0.4	0.3	0.4	0.3	0.4	0.3
	On-Road Vehicles	0.0	0.8	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	6.8	0.7	3.5	0.1	1.6	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	7.0	0.7	3.7	0.4	1.3	0.1
	Subtotal	**0.9**	**8.7**	**0.0**	**9.2**	**14.2**	**1.7**	**7.6**	**0.8**	**3.3**	**0.5**
SJVAPCD Tons/Year Threshold		**10.0**	**10.0**	**27.0**	**100.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No
2024											
Exhaust	Off Road Construction Equipment	0.0	0.2	2.62E-04	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles	0.0	0.0	1.32E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	0.1	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	0.7	0.1	0.4	0.0	0.1	0.0
	Subtotal	**0.0**	**0.2**	**3.94E-04**	**0.2**	**0.8**	**0.1**	**0.4**	**0.0**	**0.2**	**0.0**
SJVAPCD Tons/Year Threshold		**10**	**10**	**27**	**100**	**15**	**15**	**15**	**15**	**15**	**15**
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No

Construction Criteria Emissions by Year Application of Indirect Source Rule (Tons)

Emission Type	Source	Emissions (tons per year) ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$	With Water PM_{10} (tons)	With Water $PM_{2.5}$ (tons)	With Palliative PM_{10} (tons)	With Palliative $PM_{2.5}$ (tons)
2023											
Exhaust	Off Road Construction Equipment	0.9	6.3	0.0	8.5	0.2	0.3	0.2	0.3	0.2	0.3
	On-Road Vehicles	0.0	0.8	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	6.8	0.7	3.5	0.1	1.6	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	7.0	0.7	3.7	0.4	1.3	0.1
	Subtotal	**0.9**	**7.1**	**0.0**	**9.2**	**14.0**	**1.7**	**7.4**	**0.8**	**3.2**	**0.5**
SJVAPCD Tons/Year Threshold		**10**	**10**	**27**	**100**	**15**	**15**	**15**	**15**	**15**	**15**
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No
2024											
Exhaust	Off Road Construction Equipment	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	0.1	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	0.7	0.1	0.4	0.0	0.1	0.0
	Subtotal	**0.0**	**0.2**	**0.0**	**0.2**	**0.8**	**0.1**	**0.4**	**0.0**	**0.2**	**0.0**
SJVAPCD Tons/Year Threshold		**10**	**10**	**27**	**100**	**15**	**15**	**15**	**15**	**15**	**15**
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No

Max Daily Construction Emissions by Year (Pounds)

Emission Type	Source	Emissions (pounds per day) ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$	With Water PM_{10} (lbs)	With Water $PM_{2.5}$ (lbs)	With Palliative PM_{10} (lbs)	With Palliative $PM_{2.5}$ (lbs)
2023											
Exhaust	Off Road Construction Equipment	8.5	61.7	0.2	84.9	3.4	3.2	3.4	3.2	3.4	3.2
	On-Road Vehicles	0.5	4.0	0.0	6.4	0.5	0.2	0.5	0.2	0.5	0.2
Fugitive Dust	Off Road Construction Activity	-	-	-	-	68.1	6.8	35.5	0.3	15.6	0.2
	On-Road Vehicles (resuspended)	-	-	-	-	70.6	7.0	37.1	3.7	39.8	8.8
	Subtotal	**9.0**	**65.8**	**0.2**	**91**	**142.6**	**17.2**	**76.5**	**7.4**	**59.3**	**12.4**
SJVAPCD Daily Threshold (Pounds)		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Exceed Threshold?		No	No	No	No	**Yes**	No	No	No	No	No
2024											
Exhaust	Off Road Construction Equipment	0.4	3.7	0.0	4.0	0.2	0.2	0.2	0.2	0.2	0.2
	On-Road Vehicles	0.1	0.9	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	2.3	0.2	1.2	0.0	0.5	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	17.0	1.7	8.9	0.9	3.2	0.3
	Subtotal	**0.5**	**4.5**	**0.0**	**4.6**	**19.6**	**2.1**	**10.3**	**1.1**	**3.9**	**0.5**
SJVAPCD Daily Threshold (Pounds)		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No

Operational Criteria Emissions by Year

Emission Type	Source	Emissions (tons per year) ROG	NO_X	SO_X	CO	PM_{10}	$PM_{2.5}$
Operational							
Exhaust	On Road and On-Site Vehicles	0.00	0.02	0.00	0.03	0.01	0.00
Fugitive Dust	Maintenance Vehicles	-	-	-	-	0.06	0.01
	Subtotal	**0.00**	**0.02**	**0.00**	**0.03**	**0.06**	**0.01**
O&M Building and Emergency Diesel Generator		**0.10**	**0.40**	**0.10**	**0.20**	**0.10**	**0.10**
	Total	**0.10**	**0.42**	**0.10**	**0.23**	**0.2**	**0.11**
SJVAPCD Tons/Year Threshold		**10**	**10**	**27**	**100**	**15**	**15**
Exceed Threshold?		No	No	No	N/A	No	N/A
Daily Operational Emissions[1]		**0.84**	**3.47**	**0.82**	**1.88**	**1.32**	**0.89**

Notes:

1. Annualized at 244 working days per year

GHG Emissions from Construction

Year	Emissions Source (MT of CO2e)				Total (MT of CO_2e)
	Off-Road	On-site Mobile	Off-site Mobile	Indirect GHG Emissions from Water Use	
2023	1,604	95	34	7	1,740
2024	26	8	5	2	41
Total Construction	1,630	103	53	9	1,781
Decommissioning	1,630	103	53	9	1,781
Construction and Deomminssioning	3,260	206	106	18	3,562
Amortized Emissions (35-year life)	*93*	*6*	*3*	*1*	*102*
			SJVAPCD Threshold		**N/A**
			Exceed Threshold?		No

Note: Numbers have been rounded to the nearest metric ton (MT).

1. From the project description prepared for Jasmine Solar, approximately 6 AF of water would be required per month of construction

GHG Emissions from Operation

Location	Emissions Source (MT of CO2e)						Total (MT of CO_2e)
	Off-Road	On-site Mobile	Off-site Mobile	Indirect GHG Emissions from Water Use	O&M Building	Emergency Generator	
Operation	0	1	30	0	1	38	70
Amortized Construction Emissions	93	6	3	0.520			102
Total	**93**	**7**	**33**	**1**	**1**	**38**	**172**
				SJVAPCD Threshold			**N/A**
				Exceed Threshold?			No

Note: Numbers have been rounded to the nearest metric ton (MT).

1. From the project description prepared for Jasmine Solar, approximately 75 AF of water would be required each year during operation.

Appendix B

Health Risk Assessment Data

* MODELING IONS USED egDFAULT CO ELEV FL GPOL RU RAL ADJ_ U*
* PLOT FILE OF PEF D VALUES FOR OURCE GR(P: ALL
* FOR A TOTAL OI 07 RECEPTORS.
* FORM AT: (3(1X,F 5),3(1X,F8.2), 2X,A6,2X,A 8,2X,I8. 8,2X,A8)

X	Y	AVERAGE CON	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM HRS	NET ID
304368.6	3883599	4.70E-05	143.9	143.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3883599	4.72E-05	143.6	143.6	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3883599	4.80E-05	143.3	143.3	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3883599	4.94E-05	143	143	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3883599	5.17E-05	143	143	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3883599	5.48E-05	142.7	142.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3883599	5.86E-05	142.3	142.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3883599	6.26E-05	141.9	141.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3883599	6.61E-05	141.5	141.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3883599	6.89E-05	141.1	141.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3883599	7.08E-05	140.6	140.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3883599	7.19E-05	140.3	140.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3883599	7.29E-05	140	140	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3883599	7.40E-05	139.8	139.8	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3883599	7.50E-05	139.7	139.7	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3883599	7.59E-05	139.4	139.4	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3883599	7.61E-05	139.1	139.1	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3883599	7.57E-05	138.8	138.8	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3883599	7.50E-05	138.8	138.8	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3883599	7.47E-05	138.2	138.2	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3883599	7.48E-05	138	138	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3883599	7.53E-05	137.7	137.7	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3883599	7.58E-05	137.1	137.1	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3883599	7.57E-05	137	137	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3883599	7.58E-05	136.2	136.2	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3883599	7.67E-05	136.1	136.1	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3883599	7.94E-05	136	136	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3883599	8.43E-05	135.7	135.7	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3883599	9.05E-05	135.2	135.2	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3883599	9.72E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3883599	1.05E-04	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3883599	1.13E-04	134.2	134.2	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3883599	1.23E-04	134.2	134.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3883599	1.35E-04	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3883599	1.49E-04	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3883599	1.64E-04	133.2	133.2	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3883599	1.80E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3883599	1.95E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3883599	2.10E-04	132.2	132.2	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3883599	2.26E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3883599	2.42E-04	131.2	131.2	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3883599	2.59E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3883599	2.76E-04	130.7	130.7	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3883599	2.92E-04	130.1	130.1	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3883599	3.07E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3883599	3.23E-04	129.2	129.2	1.2	PERIOD	CARTGRID	43824	CART_1

308968.6	3883599	3.38E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3883599	3.53E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3883599	3.67E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3883599	3.79E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3883699	5.04E-05	142.9	142.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3883699	5.05E-05	142.6	142.6	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3883699	5.10E-05	142.3	142.3	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3883699	5.20E-05	142.2	142.2	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3883699	5.39E-05	142	142	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3883699	5.68E-05	141.7	141.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3883699	6.03E-05	141.4	141.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3883699	6.45E-05	140.9	140.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3883699	6.85E-05	140.5	140.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3883699	7.19E-05	140.1	140.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3883699	7.45E-05	139.6	139.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3883699	7.60E-05	139.3	139.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3883699	7.73E-05	139	139	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3883699	7.87E-05	138.7	138.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3883699	8.01E-05	138.3	138.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3883699	8.08E-05	138	138	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3883699	8.10E-05	137.7	137.7	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3883699	8.02E-05	137.4	137.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3883699	7.93E-05	137.4	137.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3883699	7.90E-05	137	137	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3883699	7.92E-05	137	137	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3883699	8.06E-05	136	136	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3883699	8.14E-05	136	136	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3883699	8.16E-05	135.9	135.9	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3883699	8.22E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3883699	8.34E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3883699	8.66E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3883699	9.25E-05	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3883699	9.94E-05	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3883699	1.07E-04	133.9	133.9	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3883699	1.16E-04	133.9	133.9	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3883699	1.26E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3883699	1.38E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3883699	1.51E-04	132.9	132.9	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3883699	1.67E-04	132.3	132.3	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3883699	1.84E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3883699	2.01E-04	131.9	131.9	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3883699	2.19E-04	131.3	131.3	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3883699	2.35E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3883699	2.52E-04	130.9	130.9	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3883699	2.71E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3883699	2.90E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3883699	3.08E-04	129.6	129.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3883699	3.26E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3883699	3.43E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3883699	3.60E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3883699	3.75E-04	127.9	127.9	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3883699	3.91E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3883699	4.05E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3883699	4.18E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1

304368.6	3883799	5.42E-05	141.9	141.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3883799	5.42E-05	141.7	141.7	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3883799	5.43E-05	141.6	141.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3883799	5.52E-05	141.3	141.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3883799	5.67E-05	141	141	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3883799	5.92E-05	140.7	140.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3883799	6.26E-05	140.4	140.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3883799	6.66E-05	140.1	140.1	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3883799	7.10E-05	139.5	139.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3883799	7.49E-05	139.1	139.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3883799	7.81E-05	138.7	138.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3883799	8.04E-05	138.2	138.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3883799	8.21E-05	137.9	137.9	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3883799	8.37E-05	137.6	137.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3883799	8.52E-05	137.3	137.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3883799	8.62E-05	136.9	136.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3883799	8.61E-05	136.7	136.7	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3883799	8.53E-05	136.4	136.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3883799	8.41E-05	136.3	136.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3883799	8.37E-05	136	136	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3883799	8.44E-05	135.6	135.6	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3883799	8.61E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3883799	8.73E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3883799	8.82E-05	134.6	134.6	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3883799	8.94E-05	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3883799	9.14E-05	133.7	133.7	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3883799	9.53E-05	133.6	133.6	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3883799	1.02E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3883799	1.10E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3883799	1.19E-04	132.6	132.6	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3883799	1.30E-04	132.4	132.4	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3883799	1.41E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3883799	1.55E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3883799	1.71E-04	131.6	131.6	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3883799	1.89E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3883799	2.08E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3883799	2.27E-04	130.6	130.6	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3883799	2.46E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3883799	2.64E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3883799	2.84E-04	129.6	129.6	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3883799	3.05E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3883799	3.25E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3883799	3.45E-04	128.4	128.4	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3883799	3.65E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3883799	3.83E-04	127.6	127.6	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3883799	4.01E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3883799	4.18E-04	126.7	126.7	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3883799	4.34E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3883799	4.48E-04	125.9	125.9	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3883799	4.62E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3883899	5.82E-05	141.1	141.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3883899	5.82E-05	140.7	140.7	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3883899	5.84E-05	140.6	140.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3883899	5.90E-05	140.3	140.3	1.2	PERIOD	CARTGRID	43824	CART_1

304768.6	3883899	6.01E-05	140.3	140.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3883899	6.23E-05	139.7	139.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3883899	6.53E-05	139.4	139.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3883899	6.93E-05	138.9	138.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3883899	7.37E-05	138.5	138.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3883899	7.82E-05	138.1	138.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3883899	8.21E-05	137.6	137.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3883899	8.50E-05	137.2	137.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3883899	8.71E-05	136.9	136.9	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3883899	8.91E-05	136.5	136.5	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3883899	9.08E-05	136.3	136.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3883899	9.20E-05	135.9	135.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3883899	9.20E-05	135.7	135.7	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3883899	9.10E-05	135.4	135.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3883899	8.97E-05	135.1	135.1	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3883899	8.91E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3883899	8.98E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3883899	9.20E-05	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3883899	9.37E-05	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3883899	9.56E-05	133.2	133.2	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3883899	9.75E-05	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3883899	1.00E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3883899	1.06E-04	132.2	132.2	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3883899	1.13E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3883899	1.22E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3883899	1.33E-04	131.2	131.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3883899	1.46E-04	131.2	131.2	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3883899	1.59E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3883899	1.75E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3883899	1.94E-04	130.2	130.2	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3883899	2.14E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3883899	2.35E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3883899	2.57E-04	129.2	129.2	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3883899	2.78E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3883899	2.99E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3883899	3.22E-04	128.2	128.2	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3883899	3.45E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3883899	3.68E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3883899	3.89E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3883899	4.10E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3883899	4.30E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3883899	4.49E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3883899	4.66E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3883899	4.83E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3883899	4.97E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3883899	5.11E-04	124.1	124.1	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3883999	6.25E-05	140.1	140.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3883999	6.27E-05	139.7	139.7	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3883999	6.28E-05	139.6	139.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3883999	6.33E-05	139.3	139.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3883999	6.44E-05	139	139	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3883999	6.62E-05	138.7	138.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3883999	6.89E-05	138.2	138.2	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3883999	7.26E-05	137.8	137.8	1.2	PERIOD	CARTGRID	43824	CART_1

305168.6	3883999	7.70E-05	137.4	137.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3883999	8.17E-05	137.1	137.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3883999	8.62E-05	136.6	136.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3883999	8.99E-05	136.2	136.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3883999	9.25E-05	135.8	135.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3883999	9.49E-05	135.4	135.4	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3883999	9.71E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3883999	9.84E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3883999	9.86E-05	134.5	134.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3883999	9.75E-05	134.4	134.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3883999	9.61E-05	134.1	134.1	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3883999	9.54E-05	133.9	133.9	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3883999	9.67E-05	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3883999	9.86E-05	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3883999	1.01E-04	132.9	132.9	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3883999	1.04E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3883999	1.07E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3883999	1.11E-04	131.9	131.9	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3883999	1.18E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3883999	1.26E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3883999	1.37E-04	130.9	130.9	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3883999	1.50E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3883999	1.65E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3883999	1.81E-04	129.9	129.9	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3883999	2.00E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3883999	2.21E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3883999	2.44E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3883999	2.67E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3883999	2.92E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3883999	3.16E-04	127.9	127.9	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3883999	3.41E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3883999	3.66E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3883999	3.92E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3883999	4.17E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3883999	4.40E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3883999	4.62E-04	125.9	125.9	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3883999	4.84E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3883999	5.04E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3883999	5.22E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3883999	5.39E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3883999	5.53E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3883999	5.67E-04	123.3	123.3	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884099	6.71E-05	139.1	139.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884099	6.74E-05	138.7	138.7	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884099	6.77E-05	138.2	138.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884099	6.82E-05	138.1	138.1	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884099	6.92E-05	137.7	137.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884099	7.09E-05	137.3	137.3	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884099	7.33E-05	137	137	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884099	7.66E-05	136.7	136.7	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884099	8.09E-05	136.3	136.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884099	8.59E-05	135.8	135.8	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884099	9.09E-05	135.4	135.4	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884099	9.54E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824	CART_1

305568.6	3884099	9.87E-05	134.6	134.6	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884099	1.01E-04	134.3	134.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884099	1.04E-04	134	134	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884099	1.06E-04	133.7	133.7	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884099	1.06E-04	133.4	133.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884099	1.05E-04	133.1	133.1	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884099	1.04E-04	132.8	132.8	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884099	1.03E-04	132.6	132.6	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884099	1.04E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884099	1.06E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884099	1.09E-04	131.7	131.7	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884099	1.13E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884099	1.18E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884099	1.24E-04	130.7	130.7	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884099	1.32E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884099	1.42E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884099	1.55E-04	129.6	129.6	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884099	1.71E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884099	1.88E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884099	2.08E-04	128.6	128.6	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884099	2.30E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884099	2.54E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884099	2.80E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884099	3.07E-04	127.6	127.6	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884099	3.35E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884099	3.62E-04	126.7	126.7	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884099	3.91E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884099	4.19E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884099	4.48E-04	125.7	125.7	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884099	4.75E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884099	5.00E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884099	5.24E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884099	5.46E-04	124.6	124.6	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884099	5.67E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884099	5.85E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884099	6.02E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884099	6.17E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884099	6.31E-04	122.7	122.7	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884199	7.21E-05	137.8	137.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884199	7.25E-05	137.5	137.5	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884199	7.30E-05	137.2	137.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884199	7.36E-05	136.9	136.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884199	7.46E-05	136.6	136.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884199	7.61E-05	136.3	136.3	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884199	7.83E-05	135.9	135.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884199	8.15E-05	135.5	135.5	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884199	8.56E-05	135.1	135.1	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884199	9.07E-05	134.5	134.5	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884199	9.61E-05	134.2	134.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884199	1.01E-04	133.9	133.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884199	1.05E-04	133.6	133.6	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884199	1.08E-04	133.3	133.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884199	1.11E-04	133	133	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884199	1.14E-04	132.6	132.6	1.2	PERIOD	CARTGRID	43824	CART_1

305968.6	3884199	1.14E-04	132.2	132.2	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884199	1.13E-04	131.7	131.7	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884199	1.12E-04	131.4	131.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884199	1.12E-04	131.2	131.2	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884199	1.13E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884199	1.15E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884199	1.18E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884199	1.24E-04	130.2	130.2	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884199	1.31E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884199	1.39E-04	129.5	129.5	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884199	1.50E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884199	1.62E-04	129	129	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884199	1.78E-04	128.2	128.2	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884199	1.97E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884199	2.17E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884199	2.40E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884199	2.65E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884199	2.93E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884199	3.25E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884199	3.56E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884199	3.86E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884199	4.19E-04	125.2	125.2	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884199	4.51E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884199	4.83E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884199	5.14E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884199	5.43E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884199	5.70E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884199	5.95E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884199	6.19E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884199	6.40E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884199	6.59E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884199	6.75E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884199	6.91E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884199	7.04E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884299	7.72E-05	136.8	136.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884299	7.79E-05	136.5	136.5	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884299	7.86E-05	136.2	136.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884299	7.92E-05	135.9	135.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884299	8.02E-05	135.6	135.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884299	8.18E-05	135.3	135.3	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884299	8.40E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884299	8.72E-05	134.4	134.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884299	9.12E-05	133.8	133.8	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884299	9.61E-05	133.5	133.5	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884299	1.02E-04	133.2	133.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884299	1.08E-04	132.9	132.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884299	1.13E-04	132.6	132.6	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884299	1.17E-04	132.3	132.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884299	1.20E-04	131.9	131.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884299	1.23E-04	131.3	131.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884299	1.24E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884299	1.23E-04	130.7	130.7	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884299	1.21E-04	130.4	130.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884299	1.22E-04	130	130	1.2	PERIOD	CARTGRID	43824	CART_1

306368.6	3884299	1.23E-04	130	130	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3884299	1.26E-04	130	130	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3884299	1.30E-04	129.9	129.9	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3884299	1.37E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306768.6	3884299	1.46E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306868.6	3884299	1.57E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824 CART_1
306968.6	3884299	1.72E-04	128	128	1.2	PERIOD	CARTGRID	43824 CART_1
307068.6	3884299	1.87E-04	127.9	127.9	1.2	PERIOD	CARTGRID	43824 CART_1
307168.6	3884299	2.06E-04	127	127	1.2	PERIOD	CARTGRID	43824 CART_1
307268.6	3884299	2.28E-04	127	127	1.2	PERIOD	CARTGRID	43824 CART_1
307368.6	3884299	2.52E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824 CART_1
307468.6	3884299	2.80E-04	126	126	1.2	PERIOD	CARTGRID	43824 CART_1
307568.6	3884299	3.09E-04	126	126	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3884299	3.42E-04	125.9	125.9	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3884299	3.79E-04	125	125	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3884299	4.15E-04	125	125	1.2	PERIOD	CARTGRID	43824 CART_1
307968.6	3884299	4.50E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824 CART_1
308068.6	3884299	4.88E-04	124	124	1.2	PERIOD	CARTGRID	43824 CART_1
308168.6	3884299	5.24E-04	124	124	1.2	PERIOD	CARTGRID	43824 CART_1
308268.6	3884299	5.59E-04	123.9	123.9	1.2	PERIOD	CARTGRID	43824 CART_1
308368.6	3884299	5.94E-04	123	123	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3884299	6.25E-04	123	123	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3884299	6.53E-04	123	123	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3884299	6.80E-04	122.9	122.9	1.2	PERIOD	CARTGRID	43824 CART_1
308768.6	3884299	7.03E-04	122.9	122.9	1.2	PERIOD	CARTGRID	43824 CART_1
308868.6	3884299	7.25E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
308968.6	3884299	7.44E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
309068.6	3884299	7.60E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824 CART_1
309168.6	3884299	7.75E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3884299	7.87E-04	120.9	120.9	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3884399	8.24E-05	135.8	135.8	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3884399	8.36E-05	135.6	135.6	1.2	PERIOD	CARTGRID	43824 CART_1
304568.6	3884399	8.45E-05	135.2	135.2	1.2	PERIOD	CARTGRID	43824 CART_1
304668.6	3884399	8.54E-05	134.9	134.9	1.2	PERIOD	CARTGRID	43824 CART_1
304768.6	3884399	8.66E-05	134.6	134.6	1.2	PERIOD	CARTGRID	43824 CART_1
304868.6	3884399	8.81E-05	134.3	134.3	1.2	PERIOD	CARTGRID	43824 CART_1
304968.6	3884399	9.05E-05	133.7	133.7	1.2	PERIOD	CARTGRID	43824 CART_1
305068.6	3884399	9.35E-05	133.4	133.4	1.2	PERIOD	CARTGRID	43824 CART_1
305168.6	3884399	9.74E-05	133.1	133.1	1.2	PERIOD	CARTGRID	43824 CART_1
305268.6	3884399	1.02E-04	132.7	132.7	1.2	PERIOD	CARTGRID	43824 CART_1
305368.6	3884399	1.08E-04	132.3	132.3	1.2	PERIOD	CARTGRID	43824 CART_1
305468.6	3884399	1.15E-04	131.8	131.8	1.2	PERIOD	CARTGRID	43824 CART_1
305568.6	3884399	1.21E-04	131.5	131.5	1.2	PERIOD	CARTGRID	43824 CART_1
305668.6	3884399	1.26E-04	131.2	131.2	1.2	PERIOD	CARTGRID	43824 CART_1
305768.6	3884399	1.30E-04	130.6	130.6	1.2	PERIOD	CARTGRID	43824 CART_1
305868.6	3884399	1.33E-04	130.3	130.3	1.2	PERIOD	CARTGRID	43824 CART_1
305968.6	3884399	1.34E-04	130	130	1.2	PERIOD	CARTGRID	43824 CART_1
306068.6	3884399	1.33E-04	129.7	129.7	1.2	PERIOD	CARTGRID	43824 CART_1
306168.6	3884399	1.32E-04	129.4	129.4	1.2	PERIOD	CARTGRID	43824 CART_1
306268.6	3884399	1.33E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306368.6	3884399	1.35E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3884399	1.38E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3884399	1.44E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3884399	1.52E-04	128.6	128.6	1.2	PERIOD	CARTGRID	43824 CART_1

306768.6	3884399	1.65E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884399	1.80E-04	127.6	127.6	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884399	1.98E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884399	2.19E-04	126.6	126.6	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884399	2.42E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884399	2.68E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884399	2.97E-04	125.6	125.6	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884399	3.30E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884399	3.65E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884399	4.04E-04	124.4	124.4	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884399	4.46E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884399	4.89E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884399	5.31E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884399	5.72E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884399	6.13E-04	122.6	122.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884399	6.52E-04	122.6	122.6	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884399	6.89E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884399	7.22E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884399	7.52E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884399	7.79E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884399	8.03E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884399	8.25E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884399	8.43E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884399	8.58E-04	120.6	120.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884399	8.71E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884399	8.81E-04	119.6	119.6	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884499	8.77E-05	135	135	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884499	8.92E-05	134.8	134.8	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884499	9.07E-05	134.5	134.5	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884499	9.20E-05	134.1	134.1	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884499	9.35E-05	133.6	133.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884499	9.51E-05	133.3	133.3	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884499	9.76E-05	132.7	132.7	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884499	1.01E-04	132.4	132.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884499	1.05E-04	132	132	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884499	1.10E-04	131.7	131.7	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884499	1.15E-04	131.4	131.4	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884499	1.22E-04	131.1	131.1	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884499	1.30E-04	130.5	130.5	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884499	1.36E-04	130.2	130.2	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884499	1.41E-04	129.6	129.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884499	1.45E-04	129.3	129.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884499	1.47E-04	128.8	128.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884499	1.47E-04	128.4	128.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884499	1.45E-04	128.3	128.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884499	1.46E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884499	1.49E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884499	1.53E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884499	1.61E-04	128	128	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884499	1.73E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884499	1.88E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884499	2.09E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884499	2.33E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884499	2.60E-04	125.2	125.2	1.2	PERIOD	CARTGRID	43824	CART_1

307168.6	3884499	2.88E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884499	3.18E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884499	3.54E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884499	3.93E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884499	4.37E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884499	4.83E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884499	5.31E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884499	5.82E-04	122.2	122.2	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884499	6.30E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884499	6.77E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884499	7.23E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884499	7.65E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884499	8.04E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884499	8.39E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884499	8.70E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884499	8.97E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884499	9.22E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884499	9.42E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884499	9.58E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884499	9.71E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884499	9.81E-04	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884499	9.88E-04	118.5	118.5	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884599	9.31E-05	134.1	134.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884599	9.52E-05	133.8	133.8	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884599	9.74E-05	133.2	133.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884599	9.93E-05	132.9	132.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884599	1.01E-04	132.6	132.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884599	1.03E-04	131.9	131.9	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884599	1.06E-04	131.6	131.6	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884599	1.09E-04	131.3	131.3	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884599	1.13E-04	131	131	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884599	1.18E-04	130.7	130.7	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884599	1.24E-04	130.4	130.4	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884599	1.31E-04	130.1	130.1	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884599	1.40E-04	129.5	129.5	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884599	1.47E-04	129.2	129.2	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884599	1.54E-04	128.6	128.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884599	1.59E-04	128.2	128.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884599	1.62E-04	127.8	127.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884599	1.62E-04	127.4	127.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884599	1.60E-04	127.3	127.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884599	1.62E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884599	1.65E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884599	1.72E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884599	1.82E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884599	1.98E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884599	2.19E-04	125.9	125.9	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884599	2.46E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884599	2.77E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884599	3.12E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884599	3.47E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884599	3.85E-04	123.9	123.9	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884599	4.29E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884599	4.76E-04	122.9	122.9	1.2	PERIOD	CARTGRID	43824	CART_1

307568.6	3884599	5.29E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3884599	5.83E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3884599	6.40E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3884599	6.99E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
307968.6	3884599	7.54E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
308068.6	3884599	8.07E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
308168.6	3884599	8.57E-04	120.9	120.9	1.2	PERIOD	CARTGRID	43824 CART_1
308268.6	3884599	9.05E-04	120	120	1.2	PERIOD	CARTGRID	43824 CART_1
308368.6	3884599	9.45E-04	120	120	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3884599	9.81E-04	120	120	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3884599	1.01E-03	119.9	119.9	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3884599	1.04E-03	119.9	119.9	1.2	PERIOD	CARTGRID	43824 CART_1
308768.6	3884599	1.06E-03	119	119	1.2	PERIOD	CARTGRID	43824 CART_1
308868.6	3884599	1.08E-03	119	119	1.2	PERIOD	CARTGRID	43824 CART_1
308968.6	3884599	1.09E-03	119	119	1.2	PERIOD	CARTGRID	43824 CART_1
309068.6	3884599	1.10E-03	118.9	118.9	1.2	PERIOD	CARTGRID	43824 CART_1
309168.6	3884599	1.11E-03	118	118	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3884599	1.10E-03	117.3	117.3	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3884699	9.88E-05	133	133	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3884699	1.02E-04	132.5	132.5	1.2	PERIOD	CARTGRID	43824 CART_1
304568.6	3884699	1.04E-04	132.2	132.2	1.2	PERIOD	CARTGRID	43824 CART_1
304668.6	3884699	1.07E-04	131.8	131.8	1.2	PERIOD	CARTGRID	43824 CART_1
304768.6	3884699	1.09E-04	131.5	131.5	1.2	PERIOD	CARTGRID	43824 CART_1
304868.6	3884699	1.12E-04	130.9	130.9	1.2	PERIOD	CARTGRID	43824 CART_1
304968.6	3884699	1.14E-04	130.6	130.6	1.2	PERIOD	CARTGRID	43824 CART_1
305068.6	3884699	1.18E-04	130.4	130.4	1.2	PERIOD	CARTGRID	43824 CART_1
305168.6	3884699	1.22E-04	130	130	1.2	PERIOD	CARTGRID	43824 CART_1
305268.6	3884699	1.28E-04	129.7	129.7	1.2	PERIOD	CARTGRID	43824 CART_1
305368.6	3884699	1.34E-04	129.4	129.4	1.2	PERIOD	CARTGRID	43824 CART_1
305468.6	3884699	1.42E-04	129.1	129.1	1.2	PERIOD	CARTGRID	43824 CART_1
305568.6	3884699	1.51E-04	128.5	128.5	1.2	PERIOD	CARTGRID	43824 CART_1
305668.6	3884699	1.60E-04	128.2	128.2	1.2	PERIOD	CARTGRID	43824 CART_1
305768.6	3884699	1.68E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824 CART_1
305868.6	3884699	1.75E-04	127.3	127.3	1.2	PERIOD	CARTGRID	43824 CART_1
305968.6	3884699	1.79E-04	127	127	1.2	PERIOD	CARTGRID	43824 CART_1
306068.6	3884699	1.79E-04	126.7	126.7	1.2	PERIOD	CARTGRID	43824 CART_1
306168.6	3884699	1.79E-04	126.3	126.3	1.2	PERIOD	CARTGRID	43824 CART_1
306268.6	3884699	1.81E-04	126	126	1.2	PERIOD	CARTGRID	43824 CART_1
306368.6	3884699	1.86E-04	126	126	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3884699	1.96E-04	125.6	125.6	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3884699	2.11E-04	125	125	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3884699	2.31E-04	125	125	1.2	PERIOD	CARTGRID	43824 CART_1
306768.6	3884699	2.60E-04	124.6	124.6	1.2	PERIOD	CARTGRID	43824 CART_1
306868.6	3884699	2.95E-04	124	124	1.2	PERIOD	CARTGRID	43824 CART_1
306968.6	3884699	3.36E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824 CART_1
307068.6	3884699	3.81E-04	123	123	1.2	PERIOD	CARTGRID	43824 CART_1
307168.6	3884699	4.26E-04	123	123	1.2	PERIOD	CARTGRID	43824 CART_1
307268.6	3884699	4.74E-04	122.6	122.6	1.2	PERIOD	CARTGRID	43824 CART_1
307368.6	3884699	5.27E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
307468.6	3884699	5.86E-04	121.7	121.7	1.2	PERIOD	CARTGRID	43824 CART_1
307568.6	3884699	6.49E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3884699	7.13E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3884699	7.80E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3884699	8.47E-04	120.6	120.6	1.2	PERIOD	CARTGRID	43824 CART_1

307968.6	3884699	9.12E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884699	9.73E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884699	1.03E-03	119.6	119.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884699	1.08E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884699	1.12E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884699	1.16E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884699	1.19E-03	118.6	118.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884699	1.21E-03	118.6	118.6	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884699	1.23E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884699	1.24E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884699	1.25E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884699	1.25E-03	117.6	117.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884699	1.24E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884699	1.24E-03	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884799	1.05E-04	131.7	131.7	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884799	1.08E-04	131.4	131.4	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884799	1.11E-04	131.1	131.1	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884799	1.15E-04	130.8	130.8	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884799	1.18E-04	130.5	130.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884799	1.21E-04	130.2	130.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884799	1.24E-04	129.8	129.8	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884799	1.28E-04	129.6	129.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884799	1.33E-04	129.2	129.2	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884799	1.39E-04	128.7	128.7	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884799	1.46E-04	128.4	128.4	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884799	1.54E-04	128.1	128.1	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884799	1.63E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884799	1.74E-04	127.3	127.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884799	1.85E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884799	1.93E-04	126.5	126.5	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884799	1.99E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884799	2.01E-04	125.6	125.6	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884799	2.01E-04	125.3	125.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884799	2.05E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884799	2.12E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884799	2.27E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884799	2.48E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884799	2.77E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884799	3.16E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884799	3.63E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884799	4.17E-04	122.2	122.2	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884799	4.74E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884799	5.33E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884799	5.96E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884799	6.61E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884799	7.31E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884799	8.08E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884799	8.86E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884799	9.64E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884799	1.04E-03	119.2	119.2	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884799	1.12E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884799	1.19E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884799	1.25E-03	118.2	118.2	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884799	1.30E-03	118.2	118.2	1.2	PERIOD	CARTGRID	43824	CART_1

308368.6	3884799	1.34E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884799	1.37E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884799	1.40E-03	117.2	117.2	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884799	1.41E-03	117.2	117.2	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884799	1.42E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884799	1.43E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884799	1.42E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884799	1.42E-03	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884799	1.41E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884799	1.39E-03	115.1	115.1	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884899	1.10E-04	130.7	130.7	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884899	1.14E-04	130.4	130.4	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884899	1.19E-04	130.1	130.1	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884899	1.23E-04	129.8	129.8	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884899	1.27E-04	129.5	129.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884899	1.31E-04	129.2	129.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884899	1.35E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884899	1.40E-04	128.6	128.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884899	1.45E-04	128.3	128.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884899	1.52E-04	127.9	127.9	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884899	1.60E-04	127.5	127.5	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884899	1.69E-04	127.1	127.1	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884899	1.79E-04	126.8	126.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884899	1.91E-04	126.5	126.5	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884899	2.04E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884899	2.15E-04	125.8	125.8	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884899	2.23E-04	125.3	125.3	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884899	2.26E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884899	2.29E-04	124.3	124.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884899	2.34E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884899	2.46E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884899	2.69E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884899	3.00E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884899	3.42E-04	122.9	122.9	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884899	3.96E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884899	4.58E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884899	5.29E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884899	6.06E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884899	6.83E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884899	7.62E-04	120.9	120.9	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884899	8.46E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884899	9.31E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884899	1.02E-03	119.9	119.9	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884899	1.12E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884899	1.21E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884899	1.30E-03	118.9	118.9	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884899	1.39E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884899	1.47E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884899	1.53E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884899	1.58E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884899	1.61E-03	116.9	116.9	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884899	1.64E-03	116.9	116.9	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884899	1.66E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884899	1.67E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1

308768.6	3884899	1.67E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884899	1.65E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884899	1.64E-03	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884899	1.61E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3884899	1.59E-03	114.9	114.9	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3884899	1.56E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3884999	1.16E-04	129.8	129.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3884999	1.21E-04	129.5	129.5	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3884999	1.26E-04	129.1	129.1	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3884999	1.31E-04	128.9	128.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3884999	1.36E-04	128.7	128.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3884999	1.41E-04	128.5	128.5	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3884999	1.46E-04	128.1	128.1	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3884999	1.52E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3884999	1.59E-04	127.3	127.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3884999	1.67E-04	127	127	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3884999	1.75E-04	126.7	126.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3884999	1.86E-04	126.4	126.4	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3884999	1.98E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3884999	2.11E-04	125.6	125.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3884999	2.27E-04	125.1	125.1	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3884999	2.42E-04	124.8	124.8	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3884999	2.53E-04	124.4	124.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3884999	2.59E-04	123.9	123.9	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3884999	2.64E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3884999	2.74E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3884999	2.93E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3884999	3.29E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3884999	3.76E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3884999	4.39E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3884999	5.15E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3884999	6.01E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3884999	6.96E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3884999	7.97E-04	120.4	120.4	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3884999	8.99E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3884999	1.00E-03	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3884999	1.11E-03	119.4	119.4	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3884999	1.22E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3884999	1.33E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3884999	1.45E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3884999	1.56E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3884999	1.67E-03	117.6	117.6	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3884999	1.77E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3884999	1.85E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3884999	1.91E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3884999	1.95E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3884999	1.97E-03	115.7	115.7	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3884999	1.99E-03	115.6	115.6	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3884999	1.99E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3884999	1.98E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3884999	1.96E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3884999	1.92E-03	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3884999	1.88E-03	114.2	114.2	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3884999	1.84E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1

309168.6	3884999	1.79E-03	113.6	113.6	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3884999	1.74E-03	113	113	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3885099	1.22E-04	129	129	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3885099	1.27E-04	128.6	128.6	1.2	PERIOD	CARTGRID	43824 CART_1
304568.6	3885099	1.32E-04	128.4	128.4	1.2	PERIOD	CARTGRID	43824 CART_1
304668.6	3885099	1.38E-04	128.1	128.1	1.2	PERIOD	CARTGRID	43824 CART_1
304768.6	3885099	1.45E-04	127.8	127.8	1.2	PERIOD	CARTGRID	43824 CART_1
304868.6	3885099	1.51E-04	127.5	127.5	1.2	PERIOD	CARTGRID	43824 CART_1
304968.6	3885099	1.58E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824 CART_1
305068.6	3885099	1.65E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824 CART_1
305168.6	3885099	1.73E-04	126.6	126.6	1.2	PERIOD	CARTGRID	43824 CART_1
305268.6	3885099	1.83E-04	126.2	126.2	1.2	PERIOD	CARTGRID	43824 CART_1
305368.6	3885099	1.94E-04	125.8	125.8	1.2	PERIOD	CARTGRID	43824 CART_1
305468.6	3885099	2.06E-04	125.3	125.3	1.2	PERIOD	CARTGRID	43824 CART_1
305568.6	3885099	2.20E-04	125	125	1.2	PERIOD	CARTGRID	43824 CART_1
305668.6	3885099	2.36E-04	124.7	124.7	1.2	PERIOD	CARTGRID	43824 CART_1
305768.6	3885099	2.54E-04	124.4	124.4	1.2	PERIOD	CARTGRID	43824 CART_1
305868.6	3885099	2.74E-04	123.8	123.8	1.2	PERIOD	CARTGRID	43824 CART_1
305968.6	3885099	2.90E-04	123.5	123.5	1.2	PERIOD	CARTGRID	43824 CART_1
306068.6	3885099	3.00E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824 CART_1
306168.6	3885099	3.10E-04	122.8	122.8	1.2	PERIOD	CARTGRID	43824 CART_1
306268.6	3885099	3.29E-04	122.1	122.1	1.2	PERIOD	CARTGRID	43824 CART_1
306368.6	3885099	3.63E-04	122	122	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3885099	4.21E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3885099	4.97E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3885099	5.90E-04	121	121	1.2	PERIOD	CARTGRID	43824 CART_1
306768.6	3885099	7.03E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824 CART_1
306868.6	3885099	8.24E-04	120	120	1.2	PERIOD	CARTGRID	43824 CART_1
306968.6	3885099	9.53E-04	120	120	1.2	PERIOD	CARTGRID	43824 CART_1
307068.6	3885099	1.09E-03	119.7	119.7	1.2	PERIOD	CARTGRID	43824 CART_1
307168.6	3885099	1.22E-03	119	119	1.2	PERIOD	CARTGRID	43824 CART_1
307268.6	3885099	1.35E-03	119	119	1.2	PERIOD	CARTGRID	43824 CART_1
307368.6	3885099	1.49E-03	118.7	118.7	1.2	PERIOD	CARTGRID	43824 CART_1
307468.6	3885099	1.63E-03	118	118	1.2	PERIOD	CARTGRID	43824 CART_1
307568.6	3885099	1.78E-03	118	118	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3885099	1.93E-03	117.2	117.2	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3885099	2.07E-03	117	117	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3885099	2.20E-03	116.2	116.2	1.2	PERIOD	CARTGRID	43824 CART_1
307968.6	3885099	2.30E-03	116	116	1.2	PERIOD	CARTGRID	43824 CART_1
308068.6	3885099	2.37E-03	116	116	1.2	PERIOD	CARTGRID	43824 CART_1
308168.6	3885099	2.42E-03	115.2	115.2	1.2	PERIOD	CARTGRID	43824 CART_1
308268.6	3885099	2.45E-03	115	115	1.2	PERIOD	CARTGRID	43824 CART_1
308368.6	3885099	2.45E-03	115	115	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3885099	2.44E-03	115	115	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3885099	2.42E-03	114.2	114.2	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3885099	2.37E-03	114	114	1.2	PERIOD	CARTGRID	43824 CART_1
308768.6	3885099	2.31E-03	114	114	1.2	PERIOD	CARTGRID	43824 CART_1
308868.6	3885099	2.24E-03	113.7	113.7	1.2	PERIOD	CARTGRID	43824 CART_1
308968.6	3885099	2.16E-03	113.1	113.1	1.2	PERIOD	CARTGRID	43824 CART_1
309068.6	3885099	2.08E-03	113	113	1.2	PERIOD	CARTGRID	43824 CART_1
309168.6	3885099	2.00E-03	112.2	112.2	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3885099	1.93E-03	112	112	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3885199	1.29E-04	128	128	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3885199	1.34E-04	127.7	127.7	1.2	PERIOD	CARTGRID	43824 CART_1

304568.6	3885199	1.40E-04	127.4	127.4	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885199	1.47E-04	127.1	127.1	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885199	1.54E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885199	1.62E-04	126.5	126.5	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885199	1.70E-04	126.4	126.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885199	1.79E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885199	1.90E-04	125.5	125.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885199	2.01E-04	125.2	125.2	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885199	2.14E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885199	2.29E-04	124.6	124.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885199	2.46E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885199	2.66E-04	123.7	123.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885199	2.88E-04	123.4	123.4	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885199	3.15E-04	122.8	122.8	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885199	3.38E-04	122.5	122.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885199	3.55E-04	122.2	122.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885199	3.74E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885199	4.11E-04	121.3	121.3	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885199	4.77E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885199	5.75E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885199	7.08E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885199	8.56E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885199	1.02E-03	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885199	1.19E-03	119.3	119.3	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885199	1.37E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885199	1.54E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885199	1.72E-03	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885199	1.90E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885199	2.09E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885199	2.31E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885199	2.50E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885199	2.69E-03	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885199	2.86E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885199	2.99E-03	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885199	3.10E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885199	3.15E-03	114.9	114.9	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885199	3.17E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885199	3.15E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885199	3.11E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885199	3.06E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885199	2.99E-03	113.6	113.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885199	2.89E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885199	2.75E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885199	2.61E-03	112.9	112.9	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885199	2.46E-03	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885199	2.33E-03	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885199	2.21E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885199	2.11E-03	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885299	1.37E-04	127.2	127.2	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885299	1.43E-04	126.9	126.9	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885299	1.50E-04	126.7	126.7	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885299	1.57E-04	126.4	126.4	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885299	1.65E-04	126.1	126.1	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885299	1.74E-04	125.8	125.8	1.2	PERIOD	CARTGRID	43824	CART_1

304968.6	3885299	1.84E-04	125.4	125.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885299	1.95E-04	125.1	125.1	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885299	2.07E-04	124.8	124.8	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885299	2.21E-04	124.4	124.4	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885299	2.37E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885299	2.56E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885299	2.78E-04	123.3	123.3	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885299	3.02E-04	122.8	122.8	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885299	3.31E-04	122.4	122.4	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885299	3.65E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885299	4.02E-04	121.5	121.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885299	4.30E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885299	4.68E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885299	5.48E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885299	6.95E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885299	8.86E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885299	1.11E-03	119.7	119.7	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885299	1.36E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885299	1.60E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885299	1.84E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885299	2.09E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885299	2.32E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885299	2.55E-03	117.7	117.7	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885299	2.86E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885299	3.18E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885299	3.49E-03	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885299	3.78E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885299	4.02E-03	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885299	4.23E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885299	4.35E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885299	4.42E-03	114.4	114.4	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885299	4.42E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885299	4.35E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885299	4.27E-03	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885299	4.17E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885299	4.05E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885299	3.88E-03	112.4	112.4	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885299	3.60E-03	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885299	3.28E-03	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885299	3.00E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885299	2.77E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885299	2.58E-03	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885299	2.42E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885299	2.29E-03	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885399	1.45E-04	126.3	126.3	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885399	1.52E-04	126	126	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885399	1.60E-04	125.6	125.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885399	1.69E-04	125.3	125.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885399	1.78E-04	125.3	125.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885399	1.88E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885399	2.00E-04	124.6	124.6	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885399	2.13E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885399	2.28E-04	123.8	123.8	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885399	2.44E-04	123.5	123.5	1.2	PERIOD	CARTGRID	43824	CART_1

305368.6	3885399	2.64E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885399	2.88E-04	122.8	122.8	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885399	3.17E-04	122.3	122.3	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885399	3.50E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885399	3.89E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885399	4.36E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885399	4.92E-04	120.9	120.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885399	5.45E-04	120.5	120.5	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885399	6.44E-04	120.1	120.1	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885399	8.79E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885399	1.23E-03	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885399	1.63E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885399	2.03E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885399	2.40E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885399	2.78E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885399	3.12E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885399	3.44E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885399	3.81E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885399	4.25E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885399	5.08E-03	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885399	5.79E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885399	6.31E-03	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885399	6.76E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885399	7.06E-03	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885399	7.23E-03	114.2	114.2	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885399	7.38E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885399	7.34E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885399	7.25E-03	113.1	113.1	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885399	7.06E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885399	6.88E-03	112.7	112.7	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885399	6.75E-03	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885399	6.53E-03	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885399	5.55E-03	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885399	4.48E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885399	3.80E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885399	3.36E-03	110.2	110.2	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885399	3.04E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885399	2.80E-03	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885399	2.61E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885399	2.46E-03	108.2	108.2	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885499	1.54E-04	125.2	125.2	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885499	1.61E-04	125	125	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885499	1.70E-04	124.9	124.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885499	1.80E-04	124.6	124.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885499	1.91E-04	124.3	124.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885499	2.03E-04	124	124	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885499	2.17E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885499	2.33E-04	123.4	123.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885499	2.51E-04	123.1	123.1	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885499	2.72E-04	122.7	122.7	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885499	2.97E-04	122.3	122.3	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885499	3.27E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885499	3.65E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885499	4.11E-04	121.3	121.3	1.2	PERIOD	CARTGRID	43824	CART_1

305768.6	3885499	4.68E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885499	5.42E-04	120.6	120.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885499	6.40E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885499	7.72E-04	119.8	119.8	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885499	1.30E-03	119.2	119.2	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885499	2.25E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885499	3.14E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885499	3.93E-03	118.6	118.6	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885499	4.63E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885499	5.20E-03	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885499	5.80E-03	117.6	117.6	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885499	6.32E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885499	6.79E-03	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885499	7.52E-03	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885499	1.68E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885499	2.03E-02	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885499	2.19E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885499	2.29E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885499	2.31E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885499	2.07E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885499	2.45E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885499	2.45E-02	113.9	113.9	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885499	2.40E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885499	2.36E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885499	2.34E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885499	2.33E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885499	2.29E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885499	1.95E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885499	7.23E-03	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885499	5.07E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885499	4.16E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885499	3.63E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885499	3.27E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885499	3.00E-03	108.9	108.9	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885499	2.78E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885499	2.61E-03	107.9	107.9	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885599	1.63E-04	124.4	124.4	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885599	1.72E-04	124.2	124.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885599	1.82E-04	123.9	123.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885599	1.93E-04	123.6	123.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885599	2.05E-04	123.3	123.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885599	2.20E-04	123	123	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885599	2.36E-04	122.7	122.7	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885599	2.54E-04	122.4	122.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885599	2.76E-04	122.1	122.1	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885599	3.02E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885599	3.33E-04	121.5	121.5	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885599	3.72E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885599	4.22E-04	120.9	120.9	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885599	4.88E-04	120.6	120.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885599	5.78E-04	120.3	120.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885599	7.14E-04	119.9	119.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885599	9.67E-04	119.5	119.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885599	5.20E-03	119	119	1.2	PERIOD	CARTGRID	43824	CART_1

306168.6	3885599	1.58E-02	118.4	118.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885599	2.12E-02	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885599	2.32E-02	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885599	2.47E-02	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885599	2.78E-02	117.2	117.2	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885599	2.78E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885599	2.86E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885599	2.81E-02	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885599	2.73E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885599	2.82E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885599	2.96E-02	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885599	3.12E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885599	3.20E-02	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885599	3.25E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885599	3.28E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885599	3.25E-02	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885599	1.96E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885599	1.48E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885599	1.27E-02	112.9	112.9	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885599	1.13E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885599	1.03E-02	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885599	9.64E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885599	8.94E-03	110.7	110.7	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885599	7.95E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885599	6.21E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885599	4.98E-03	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885599	4.25E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885599	3.76E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885599	3.41E-03	108.7	108.7	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885599	3.13E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885599	2.91E-03	107.4	107.4	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885599	2.72E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885699	1.73E-04	123.5	123.5	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885699	1.83E-04	123.2	123.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885699	1.95E-04	122.9	122.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885699	2.08E-04	122.6	122.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885699	2.22E-04	122.3	122.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885699	2.39E-04	122	122	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885699	2.58E-04	121.7	121.7	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885699	2.79E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885699	3.05E-04	121.4	121.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885699	3.36E-04	121.1	121.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885699	3.75E-04	120.8	120.8	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885699	4.24E-04	120.5	120.5	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885699	4.88E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885699	5.76E-04	119.9	119.9	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885699	7.02E-04	119.6	119.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885699	9.10E-04	119.2	119.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885699	1.36E-03	118.9	118.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885699	8.85E-03	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885699	2.72E-02	117.7	117.7	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885699	3.33E-02	117.5	117.5	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885699	3.35E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885699	3.51E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1

306568.6	3885699	3.63E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885699	3.53E-02	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885699	3.58E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885699	3.64E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885699	3.64E-02	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885699	3.69E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885699	3.75E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885699	3.80E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885699	3.85E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885699	3.90E-02	113.1	113.1	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885699	3.91E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885699	3.80E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885699	2.15E-02	112.5	112.5	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885699	1.44E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885699	1.13E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885699	9.48E-03	111.1	111.1	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885699	8.24E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885699	7.33E-03	110.2	110.2	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885699	6.59E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885699	5.95E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885699	5.33E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885699	4.73E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885699	4.21E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885699	3.80E-03	108.2	108.2	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885699	3.47E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885699	3.21E-03	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885699	2.99E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885699	2.80E-03	106.1	106.1	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885799	1.83E-04	122.5	122.5	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885799	1.95E-04	122.2	122.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885799	2.08E-04	121.9	121.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885799	2.23E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885799	2.39E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885799	2.58E-04	121.3	121.3	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885799	2.80E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885799	3.06E-04	120.8	120.8	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885799	3.36E-04	120.7	120.7	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885799	3.72E-04	120.4	120.4	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885799	4.16E-04	120.1	120.1	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885799	4.73E-04	119.8	119.8	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885799	5.48E-04	119.5	119.5	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885799	6.54E-04	119.2	119.2	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885799	8.12E-04	118.8	118.8	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885799	1.08E-03	118.4	118.4	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885799	1.67E-03	117.9	117.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885799	1.36E-02	117.6	117.6	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885799	2.69E-02	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885799	3.20E-02	116.9	116.9	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885799	3.31E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885799	3.50E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885799	3.64E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885799	3.74E-02	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885799	3.77E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885799	3.84E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1

306968.6	3885799	3.90E-02	114.9	114.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885799	3.95E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885799	3.99E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885799	4.06E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885799	4.09E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885799	4.07E-02	112.3	112.3	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885799	4.02E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885799	3.91E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885799	2.35E-02	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885799	1.55E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885799	1.18E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885799	9.60E-03	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885799	8.13E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885799	7.07E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885799	6.25E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885799	5.60E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885799	5.07E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885799	4.59E-03	108.9	108.9	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885799	4.17E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885799	3.81E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885799	3.51E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885799	3.25E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885799	3.03E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885799	2.85E-03	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885899	1.92E-04	121.6	121.6	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885899	2.06E-04	121.4	121.4	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885899	2.20E-04	121.2	121.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885899	2.37E-04	121	121	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885899	2.56E-04	120.8	120.8	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885899	2.77E-04	120.6	120.6	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885899	3.01E-04	120.3	120.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885899	3.29E-04	120.1	120.1	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885899	3.63E-04	120	120	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885899	4.03E-04	119.7	119.7	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885899	4.53E-04	119.3	119.3	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885899	5.17E-04	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885899	6.03E-04	118.8	118.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885899	7.27E-04	118.4	118.4	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885899	9.15E-04	118.1	118.1	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885899	1.25E-03	117.5	117.5	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885899	1.93E-03	117.1	117.1	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885899	9.12E-03	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885899	2.51E-02	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885899	3.07E-02	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885899	3.37E-02	115.6	115.6	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885899	3.54E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885899	3.69E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885899	3.80E-02	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885899	3.89E-02	114.4	114.4	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885899	3.97E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885899	4.03E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885899	4.12E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885899	4.16E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885899	4.19E-02	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1

307368.6	3885899	4.14E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885899	4.10E-02	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885899	4.03E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885899	3.92E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3885899	2.46E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885899	1.62E-02	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885899	1.22E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885899	9.82E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885899	8.21E-03	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885899	7.05E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885899	6.18E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885899	5.51E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885899	4.96E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885899	4.51E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885899	4.13E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885899	3.79E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885899	3.51E-03	106.7	106.7	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885899	3.26E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885899	3.05E-03	105.4	105.4	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885899	2.87E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3885999	2.01E-04	120.8	120.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3885999	2.15E-04	120.7	120.7	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3885999	2.31E-04	120.5	120.5	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3885999	2.49E-04	120.2	120.2	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3885999	2.69E-04	120.1	120.1	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3885999	2.91E-04	119.9	119.9	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3885999	3.18E-04	119.6	119.6	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3885999	3.48E-04	119.5	119.5	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3885999	3.85E-04	119.2	119.2	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3885999	4.30E-04	118.9	118.9	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3885999	4.86E-04	118.6	118.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3885999	5.58E-04	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3885999	6.57E-04	117.9	117.9	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3885999	8.08E-04	117.5	117.5	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3885999	1.02E-03	117.1	117.1	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3885999	1.38E-03	116.7	116.7	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3885999	2.09E-03	116.3	116.3	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3885999	7.21E-03	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3885999	2.46E-02	115.5	115.5	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3885999	3.04E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3885999	3.37E-02	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3885999	3.59E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3885999	3.75E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3885999	3.87E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3885999	4.00E-02	113.2	113.2	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3885999	4.09E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3885999	4.15E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3885999	4.15E-02	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3885999	4.17E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3885999	4.12E-02	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3885999	4.12E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3885999	4.12E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3885999	4.03E-02	110.2	110.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3885999	3.90E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1

307768.6	3885999	2.52E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3885999	1.65E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3885999	1.24E-02	109.7	109.7	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3885999	9.87E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3885999	8.19E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3885999	6.99E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3885999	6.10E-03	108.1	108.1	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3885999	5.41E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3885999	4.87E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3885999	4.43E-03	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3885999	4.06E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3885999	3.75E-03	106.7	106.7	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3885999	3.48E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3885999	3.24E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3885999	3.04E-03	104.7	104.7	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3885999	2.86E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886099	2.08E-04	120.1	120.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886099	2.22E-04	119.9	119.9	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886099	2.39E-04	119.8	119.8	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886099	2.58E-04	119.5	119.5	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886099	2.79E-04	119.5	119.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886099	3.03E-04	119.1	119.1	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886099	3.31E-04	118.9	118.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886099	3.64E-04	118.7	118.7	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886099	4.05E-04	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886099	4.54E-04	118.1	118.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886099	5.17E-04	117.7	117.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886099	6.05E-04	117.3	117.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886099	7.16E-04	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886099	8.72E-04	116.7	116.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886099	1.10E-03	116.1	116.1	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886099	1.48E-03	115.8	115.8	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886099	2.22E-03	115.5	115.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886099	6.02E-03	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886099	2.41E-02	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886099	3.03E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886099	3.38E-02	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886099	3.63E-02	113.6	113.6	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886099	3.82E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886099	3.95E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886099	4.05E-02	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886099	4.06E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886099	4.12E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886099	4.08E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886099	4.11E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886099	4.13E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886099	4.06E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886099	4.05E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886099	4.02E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886099	3.89E-02	109.9	109.9	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886099	2.53E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886099	1.63E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886099	1.22E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886099	9.66E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1

308168.6	3886099	7.98E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886099	6.80E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886099	5.93E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886099	5.27E-03	107.9	107.9	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886099	4.74E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886099	4.32E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886099	3.96E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886099	3.67E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886099	3.41E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886099	3.19E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886099	3.00E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886099	2.83E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886199	2.13E-04	119.3	119.3	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886199	2.28E-04	119.1	119.1	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886199	2.45E-04	119	119	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886199	2.65E-04	118.7	118.7	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886199	2.87E-04	118.5	118.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886199	3.13E-04	118.4	118.4	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886199	3.44E-04	118.1	118.1	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886199	3.80E-04	117.8	117.8	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886199	4.28E-04	117.5	117.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886199	4.83E-04	117.2	117.2	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886199	5.52E-04	116.9	116.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886199	6.42E-04	116.6	116.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886199	7.62E-04	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886199	9.29E-04	115.7	115.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886199	1.17E-03	115.4	115.4	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886199	1.56E-03	115.1	115.1	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886199	2.32E-03	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886199	5.20E-03	114.2	114.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886199	2.40E-02	113.9	113.9	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886199	3.06E-02	113.2	113.2	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886199	3.42E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886199	3.66E-02	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886199	3.76E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886199	3.90E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886199	3.96E-02	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886199	3.99E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886199	4.05E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886199	4.08E-02	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886199	4.03E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886199	4.02E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886199	4.01E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886199	3.96E-02	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886199	3.87E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886199	3.75E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886199	2.48E-02	108.7	108.7	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886199	1.56E-02	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886199	1.15E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886199	9.10E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886199	7.56E-03	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886199	6.47E-03	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886199	5.67E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886199	5.05E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1

308568.6	3886199	4.56E-03	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886199	4.17E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886199	3.84E-03	105.6	105.6	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886199	3.56E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886199	3.32E-03	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886199	3.11E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886199	2.93E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886199	2.77E-03	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886299	2.17E-04	118.6	118.6	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886299	2.33E-04	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886299	2.51E-04	118.3	118.3	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886299	2.71E-04	118	118	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886299	2.95E-04	117.7	117.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886299	3.26E-04	117.4	117.4	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886299	3.59E-04	117.3	117.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886299	3.98E-04	117.1	117.1	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886299	4.46E-04	116.7	116.7	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886299	5.06E-04	116.4	116.4	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886299	5.81E-04	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886299	6.78E-04	115.6	115.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886299	8.04E-04	115.3	115.3	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886299	9.77E-04	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886299	1.23E-03	114.7	114.7	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886299	1.63E-03	114.3	114.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886299	2.39E-03	113.8	113.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886299	4.95E-03	113.5	113.5	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886299	2.41E-02	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886299	3.05E-02	112.5	112.5	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886299	3.36E-02	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886299	3.56E-02	111.7	111.7	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886299	3.69E-02	111.1	111.1	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886299	3.82E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886299	3.92E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886299	3.94E-02	110.2	110.2	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886299	3.96E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886299	3.91E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886299	3.85E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886299	3.74E-02	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886299	3.68E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886299	3.62E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886299	3.51E-02	108.2	108.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886299	3.38E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886299	2.20E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886299	1.35E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886299	1.01E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886299	8.21E-03	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886299	6.94E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886299	6.02E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886299	5.32E-03	106.5	106.5	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886299	4.78E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886299	4.34E-03	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886299	3.98E-03	105.1	105.1	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886299	3.68E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886299	3.42E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1

308968.6	3886299	3.20E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886299	3.01E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886299	2.84E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886299	2.69E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886399	2.20E-04	117.9	117.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886399	2.38E-04	117.6	117.6	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886399	2.57E-04	117.3	117.3	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886399	2.79E-04	117.3	117.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886399	3.04E-04	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886399	3.34E-04	116.7	116.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886399	3.70E-04	116.4	116.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886399	4.12E-04	116.1	116.1	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886399	4.64E-04	115.8	115.8	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886399	5.28E-04	115.5	115.5	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886399	6.07E-04	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886399	7.08E-04	114.9	114.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886399	8.40E-04	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886399	1.02E-03	114.3	114.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886399	1.27E-03	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886399	1.68E-03	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886399	2.44E-03	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886399	4.86E-03	112.7	112.7	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886399	2.35E-02	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886399	2.92E-02	111.3	111.3	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886399	3.26E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886399	3.51E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886399	3.68E-02	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886399	3.75E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886399	3.84E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886399	3.87E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886399	2.92E-02	109.9	109.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886399	2.41E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886399	2.19E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886399	2.05E-02	108.9	108.9	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886399	1.93E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886399	1.84E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886399	1.75E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886399	1.62E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886399	1.34E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886399	1.03E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886399	8.43E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886399	7.15E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886399	6.22E-03	106.9	106.9	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886399	5.49E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886399	4.92E-03	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886399	4.45E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886399	4.07E-03	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886399	3.75E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886399	3.49E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886399	3.26E-03	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886399	3.06E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886399	2.88E-03	102.9	102.9	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886399	2.73E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886399	2.59E-03	101.3	101.3	1.2	PERIOD	CARTGRID	43824	CART_1

304368.6	3886499	2.25E-04	117.2	117.2	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886499	2.42E-04	117	117	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886499	2.62E-04	116.7	116.7	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886499	2.84E-04	116.5	116.5	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886499	3.11E-04	116.3	116.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886499	3.42E-04	116	116	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886499	3.80E-04	115.7	115.7	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886499	4.25E-04	115.4	115.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886499	4.80E-04	115.1	115.1	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886499	5.47E-04	114.8	114.8	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886499	6.29E-04	114.5	114.5	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886499	7.33E-04	114.2	114.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886499	8.68E-04	113.8	113.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886499	1.05E-03	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886499	1.31E-03	113.1	113.1	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886499	1.71E-03	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886499	2.46E-03	112.3	112.3	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886499	4.68E-03	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886499	2.25E-02	111.4	111.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886499	2.89E-02	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886499	3.19E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886499	3.44E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886499	3.62E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886499	3.71E-02	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886499	3.75E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886499	3.74E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886499	2.46E-02	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886499	1.74E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886499	1.44E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886499	1.28E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886499	1.17E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886499	1.08E-02	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886499	1.01E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886499	9.37E-03	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886499	8.62E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886499	7.79E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886499	6.91E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886499	6.14E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886499	5.49E-03	105.6	105.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886499	4.95E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886499	4.50E-03	104.7	104.7	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886499	4.11E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886499	3.80E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886499	3.52E-03	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886499	3.29E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886499	3.08E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886499	2.90E-03	102.2	102.2	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886499	2.74E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886499	2.60E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886499	2.48E-03	100.7	100.7	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886599	2.28E-04	116.5	116.5	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886599	2.46E-04	116.2	116.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886599	2.66E-04	115.9	115.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886599	2.90E-04	115.7	115.7	1.2	PERIOD	CARTGRID	43824	CART_1

304768.6	3886599	3.17E-04	115.5	115.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886599	3.50E-04	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886599	3.89E-04	115	115	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886599	4.37E-04	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886599	4.93E-04	114.4	114.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886599	5.62E-04	114	114	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886599	6.47E-04	113.7	113.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886599	7.53E-04	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886599	8.90E-04	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886599	1.07E-03	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886599	1.33E-03	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886599	1.73E-03	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886599	2.46E-03	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886599	4.52E-03	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886599	2.17E-02	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886599	2.81E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886599	3.19E-02	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886599	3.38E-02	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886599	3.54E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886599	3.66E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886599	3.67E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886599	3.66E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886599	2.42E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886599	1.64E-02	107.7	107.7	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886599	1.29E-02	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886599	1.10E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886599	9.69E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886599	8.77E-03	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886599	8.02E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886599	7.41E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886599	6.87E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886599	6.36E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886599	5.84E-03	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886599	5.34E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886599	4.89E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886599	4.47E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886599	4.12E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886599	3.80E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886599	3.53E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886599	3.30E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886599	3.09E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886599	2.91E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886599	2.75E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886599	2.60E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886599	2.48E-03	100.7	100.7	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886599	2.36E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886699	2.31E-04	115.8	115.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886699	2.49E-04	115.5	115.5	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886699	2.71E-04	115.2	115.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886699	2.95E-04	114.9	114.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886699	3.24E-04	114.7	114.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886699	3.58E-04	114.6	114.6	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886699	3.98E-04	114.2	114.2	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886699	4.46E-04	113.8	113.8	1.2	PERIOD	CARTGRID	43824	CART_1

305168.6	3886699	5.04E-04	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886699	5.74E-04	113.3	113.3	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886699	6.59E-04	112.9	112.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886699	7.66E-04	112.5	112.5	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886699	9.03E-04	112.3	112.3	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886699	1.09E-03	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886699	1.34E-03	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886699	1.73E-03	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886699	2.45E-03	110.7	110.7	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886699	4.41E-03	110.3	110.3	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886699	2.11E-02	109.9	109.9	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886699	2.76E-02	109.3	109.3	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886699	3.12E-02	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886699	3.34E-02	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886699	3.48E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886699	3.59E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886699	3.65E-02	107.9	107.9	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886699	3.59E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886699	2.39E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886699	1.59E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886699	1.22E-02	106.9	106.9	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886699	1.01E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886699	8.69E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886699	7.70E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886699	6.96E-03	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886699	6.36E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886699	5.88E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886699	5.47E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886699	5.09E-03	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886699	4.71E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886699	4.37E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886699	4.05E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886699	3.77E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886699	3.52E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886699	3.29E-03	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886699	3.08E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886699	2.90E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886699	2.74E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886699	2.60E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886699	2.47E-03	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886699	2.35E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886699	2.25E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886799	2.34E-04	115.1	115.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886799	2.53E-04	114.8	114.8	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886799	2.75E-04	114.5	114.5	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886799	3.00E-04	114.3	114.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886799	3.30E-04	114.1	114.1	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886799	3.65E-04	113.7	113.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886799	4.06E-04	113.3	113.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886799	4.54E-04	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886799	5.12E-04	112.8	112.8	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886799	5.81E-04	112.4	112.4	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886799	6.66E-04	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886799	7.72E-04	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1

305568.6	3886799	9.09E-04	111.7	111.7	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886799	1.09E-03	111.3	111.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886799	1.34E-03	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886799	1.72E-03	110.5	110.5	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886799	2.42E-03	110.1	110.1	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886799	4.29E-03	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886799	2.05E-02	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886799	2.72E-02	108.7	108.7	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886799	3.05E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886799	3.29E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886799	3.44E-02	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886799	3.52E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886799	3.58E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886799	3.55E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886799	2.37E-02	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886799	1.54E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886799	1.16E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886799	9.42E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886799	7.96E-03	105.4	105.4	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886799	6.95E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886799	6.21E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886799	5.65E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886799	5.19E-03	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886799	4.82E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886799	4.50E-03	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886799	4.21E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886799	3.94E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886799	3.69E-03	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886799	3.46E-03	102.2	102.2	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886799	3.25E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886799	3.06E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886799	2.88E-03	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886799	2.72E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886799	2.58E-03	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886799	2.45E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886799	2.33E-03	99.6	99.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886799	2.23E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886799	2.14E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886899	2.36E-04	114.3	114.3	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886899	2.56E-04	114.1	114.1	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886899	2.79E-04	113.8	113.8	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886899	3.05E-04	113.6	113.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886899	3.36E-04	113.2	113.2	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886899	3.71E-04	113.1	113.1	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886899	4.12E-04	112.7	112.7	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886899	4.60E-04	112.3	112.3	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886899	5.17E-04	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886899	5.85E-04	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886899	6.69E-04	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886899	7.73E-04	111.3	111.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886899	9.06E-04	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886899	1.08E-03	110.7	110.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886899	1.33E-03	110.3	110.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886899	1.70E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1

305968.6	3886899	2.37E-03	109.4	109.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886899	4.17E-03	109.1	109.1	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886899	2.00E-02	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886899	2.66E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3886899	3.03E-02	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886899	3.22E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886899	3.37E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886899	3.47E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886899	3.48E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886899	3.45E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886899	2.32E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886899	1.47E-02	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886899	1.09E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886899	8.69E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886899	7.26E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886899	6.28E-03	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886899	5.57E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886899	5.04E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886899	4.64E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886899	4.30E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886899	4.02E-03	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886899	3.77E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886899	3.56E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886899	3.36E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886899	3.17E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886899	2.99E-03	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886899	2.84E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886899	2.69E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886899	2.55E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886899	2.43E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886899	2.31E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886899	2.21E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886899	2.11E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886899	2.03E-03	98.1	98.1	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3886999	2.39E-04	113.7	113.7	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3886999	2.59E-04	113.4	113.4	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3886999	2.83E-04	113.1	113.1	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3886999	3.09E-04	113	113	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3886999	3.40E-04	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3886999	3.75E-04	112.4	112.4	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3886999	4.16E-04	112.1	112.1	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3886999	4.63E-04	111.8	111.8	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3886999	5.18E-04	111.5	111.5	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3886999	5.85E-04	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3886999	6.66E-04	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3886999	7.66E-04	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3886999	8.94E-04	110.3	110.3	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3886999	1.06E-03	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3886999	1.30E-03	109.7	109.7	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3886999	1.65E-03	109.3	109.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3886999	2.29E-03	108.8	108.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3886999	4.00E-03	108.5	108.5	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3886999	1.95E-02	108.1	108.1	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3886999	2.60E-02	107.3	107.3	1.2	PERIOD	CARTGRID	43824	CART_1

306368.6	3886999	2.94E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3886999	3.15E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3886999	3.25E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3886999	3.33E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3886999	3.37E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3886999	3.31E-02	105.3	105.3	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3886999	2.21E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3886999	1.36E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3886999	9.86E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3886999	7.76E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3886999	6.47E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3886999	5.59E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3886999	4.97E-03	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3886999	4.49E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3886999	4.14E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3886999	3.84E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3886999	3.61E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3886999	3.40E-03	101.9	101.9	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3886999	3.21E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3886999	3.05E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3886999	2.90E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3886999	2.76E-03	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3886999	2.62E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3886999	2.50E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3886999	2.38E-03	99.9	99.9	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3886999	2.27E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3886999	2.17E-03	98.9	98.9	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3886999	2.08E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3886999	2.00E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3886999	1.92E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887099	2.42E-04	112.9	112.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887099	2.63E-04	112.8	112.8	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887099	2.86E-04	112.6	112.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887099	3.13E-04	112.3	112.3	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887099	3.43E-04	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887099	3.77E-04	111.7	111.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887099	4.17E-04	111.4	111.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887099	4.62E-04	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887099	5.16E-04	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887099	5.80E-04	110.8	110.8	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887099	6.57E-04	110.4	110.4	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887099	7.51E-04	110.2	110.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887099	8.70E-04	109.8	109.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887099	1.03E-03	109.3	109.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887099	1.24E-03	109	109	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887099	1.57E-03	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887099	2.15E-03	108.1	108.1	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887099	3.74E-03	107.8	107.8	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887099	1.86E-02	107.4	107.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887099	2.46E-02	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887099	2.74E-02	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887099	2.88E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887099	2.99E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887099	3.04E-02	105.6	105.6	1.2	PERIOD	CARTGRID	43824	CART_1

306768.6	3887099	3.05E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887099	3.01E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887099	1.95E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887099	1.14E-02	104.4	104.4	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887099	8.28E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887099	6.62E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887099	5.59E-03	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887099	4.87E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887099	4.36E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887099	3.98E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887099	3.67E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887099	3.43E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887099	3.22E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887099	3.06E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887099	2.90E-03	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887099	2.77E-03	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887099	2.64E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887099	2.52E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887099	2.41E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887099	2.31E-03	99.2	99.2	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887099	2.21E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887099	2.12E-03	98.9	98.9	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887099	2.04E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887099	1.96E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887099	1.88E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887099	1.81E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887199	2.45E-04	112.2	112.2	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887199	2.66E-04	112	112	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887199	2.89E-04	111.9	111.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887199	3.15E-04	111.6	111.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887199	3.44E-04	111.3	111.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887199	3.78E-04	111	111	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887199	4.15E-04	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887199	4.59E-04	110.7	110.7	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887199	5.10E-04	110.4	110.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887199	5.69E-04	110.1	110.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887199	6.41E-04	109.9	109.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887199	7.26E-04	109.5	109.5	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887199	8.33E-04	109.1	109.1	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887199	9.70E-04	108.7	108.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887199	1.16E-03	108.3	108.3	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887199	1.43E-03	107.9	107.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887199	1.89E-03	107.4	107.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887199	3.03E-03	107.1	107.1	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887199	9.38E-03	106.7	106.7	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887199	1.23E-02	106.5	106.5	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887199	1.37E-02	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887199	1.45E-02	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887199	1.48E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887199	1.51E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887199	1.51E-02	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887199	1.44E-02	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887199	1.12E-02	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887199	8.03E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1

307168.6	3887199	6.38E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887199	5.35E-03	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887199	4.65E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887199	4.15E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887199	3.76E-03	102.2	102.2	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887199	3.47E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887199	3.24E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887199	3.04E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887199	2.88E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887199	2.73E-03	100.1	100.1	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887199	2.61E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887199	2.50E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887199	2.40E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887199	2.30E-03	99.2	99.2	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887199	2.21E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887199	2.13E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887199	2.05E-03	98.2	98.2	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887199	1.97E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887199	1.90E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887199	1.83E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887199	1.77E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887199	1.71E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887299	2.47E-04	111.5	111.5	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887299	2.68E-04	111.2	111.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887299	2.90E-04	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887299	3.16E-04	110.9	110.9	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887299	3.44E-04	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887299	3.76E-04	110.6	110.6	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887299	4.11E-04	110.3	110.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887299	4.52E-04	110	110	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887299	4.99E-04	109.7	109.7	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887299	5.54E-04	109.6	109.6	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887299	6.19E-04	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887299	6.95E-04	108.8	108.8	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887299	7.87E-04	108.4	108.4	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887299	9.04E-04	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887299	1.06E-03	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887299	1.27E-03	107.3	107.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887299	1.57E-03	106.8	106.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887299	2.02E-03	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887299	2.67E-03	106.3	106.3	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887299	3.55E-03	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887299	4.31E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887299	4.94E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887299	5.41E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887299	5.74E-03	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887299	5.87E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887299	5.87E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887299	5.68E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887299	5.24E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887299	4.67E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887299	4.19E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887299	3.80E-03	102.9	102.9	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887299	3.47E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1

307568.6	3887299	3.21E-03	102	102	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3887299	3.00E-03	101.9	101.9	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3887299	2.82E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3887299	2.68E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307968.6	3887299	2.55E-03	100	100	1.2	PERIOD	CARTGRID	43824 CART_1
308068.6	3887299	2.44E-03	100	100	1.2	PERIOD	CARTGRID	43824 CART_1
308168.6	3887299	2.35E-03	99.9	99.9	1.2	PERIOD	CARTGRID	43824 CART_1
308268.6	3887299	2.25E-03	99	99	1.2	PERIOD	CARTGRID	43824 CART_1
308368.6	3887299	2.17E-03	99	99	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3887299	2.09E-03	99	99	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3887299	2.02E-03	98.9	98.9	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3887299	1.95E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308768.6	3887299	1.89E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308868.6	3887299	1.83E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308968.6	3887299	1.76E-03	97	97	1.2	PERIOD	CARTGRID	43824 CART_1
309068.6	3887299	1.71E-03	97	97	1.2	PERIOD	CARTGRID	43824 CART_1
309168.6	3887299	1.65E-03	96	96	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3887299	1.60E-03	96	96	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3887399	2.49E-04	110.8	110.8	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3887399	2.69E-04	110.5	110.5	1.2	PERIOD	CARTGRID	43824 CART_1
304568.6	3887399	2.91E-04	110.3	110.3	1.2	PERIOD	CARTGRID	43824 CART_1
304668.6	3887399	3.15E-04	110.2	110.2	1.2	PERIOD	CARTGRID	43824 CART_1
304768.6	3887399	3.41E-04	110	110	1.2	PERIOD	CARTGRID	43824 CART_1
304868.6	3887399	3.71E-04	109.9	109.9	1.2	PERIOD	CARTGRID	43824 CART_1
304968.6	3887399	4.05E-04	109.6	109.6	1.2	PERIOD	CARTGRID	43824 CART_1
305068.6	3887399	4.43E-04	109.3	109.3	1.2	PERIOD	CARTGRID	43824 CART_1
305168.6	3887399	4.87E-04	109.1	109.1	1.2	PERIOD	CARTGRID	43824 CART_1
305268.6	3887399	5.37E-04	108.8	108.8	1.2	PERIOD	CARTGRID	43824 CART_1
305368.6	3887399	5.94E-04	108.4	108.4	1.2	PERIOD	CARTGRID	43824 CART_1
305468.6	3887399	6.62E-04	108.1	108.1	1.2	PERIOD	CARTGRID	43824 CART_1
305568.6	3887399	7.43E-04	107.8	107.8	1.2	PERIOD	CARTGRID	43824 CART_1
305668.6	3887399	8.42E-04	107.5	107.5	1.2	PERIOD	CARTGRID	43824 CART_1
305768.6	3887399	9.66E-04	107	107	1.2	PERIOD	CARTGRID	43824 CART_1
305868.6	3887399	1.12E-03	106.6	106.6	1.2	PERIOD	CARTGRID	43824 CART_1
305968.6	3887399	1.32E-03	106.3	106.3	1.2	PERIOD	CARTGRID	43824 CART_1
306068.6	3887399	1.57E-03	106.1	106.1	1.2	PERIOD	CARTGRID	43824 CART_1
306168.6	3887399	1.84E-03	105.8	105.8	1.2	PERIOD	CARTGRID	43824 CART_1
306268.6	3887399	2.17E-03	105	105	1.2	PERIOD	CARTGRID	43824 CART_1
306368.6	3887399	2.55E-03	105	105	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3887399	2.91E-03	105	105	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3887399	3.20E-03	104.2	104.2	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3887399	3.45E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306768.6	3887399	3.61E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306868.6	3887399	3.70E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306968.6	3887399	3.69E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
307068.6	3887399	3.64E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
307168.6	3887399	3.49E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
307268.6	3887399	3.29E-03	102.6	102.6	1.2	PERIOD	CARTGRID	43824 CART_1
307368.6	3887399	3.09E-03	102	102	1.2	PERIOD	CARTGRID	43824 CART_1
307468.6	3887399	2.91E-03	101.7	101.7	1.2	PERIOD	CARTGRID	43824 CART_1
307568.6	3887399	2.74E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3887399	2.59E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3887399	2.47E-03	100.7	100.7	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3887399	2.36E-03	100	100	1.2	PERIOD	CARTGRID	43824 CART_1

307968.6	3887399	2.27E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887399	2.18E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887399	2.10E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887399	2.03E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887399	1.97E-03	98.7	98.7	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887399	1.90E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887399	1.84E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887399	1.79E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887399	1.74E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887399	1.68E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887399	1.63E-03	96.7	96.7	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887399	1.58E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887399	1.54E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887399	1.50E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887499	2.50E-04	110.1	110.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887499	2.69E-04	109.8	109.8	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887499	2.90E-04	109.5	109.5	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887499	3.13E-04	109.5	109.5	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887499	3.38E-04	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887499	3.67E-04	109.2	109.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887499	3.98E-04	108.9	108.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887499	4.34E-04	108.6	108.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887499	4.74E-04	108.3	108.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887499	5.20E-04	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887499	5.72E-04	107.7	107.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887499	6.32E-04	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887499	7.01E-04	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887499	7.83E-04	106.8	106.8	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887499	8.80E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887499	9.96E-04	106.1	106.1	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887499	1.13E-03	105.8	105.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887499	1.29E-03	105.5	105.5	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887499	1.45E-03	105.4	105.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887499	1.63E-03	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887499	1.82E-03	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887499	2.03E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887499	2.24E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887499	2.41E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887499	2.54E-03	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887499	2.64E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887499	2.70E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887499	2.72E-03	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887499	2.70E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887499	2.64E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887499	2.54E-03	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887499	2.44E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887499	2.35E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887499	2.25E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887499	2.17E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887499	2.09E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887499	2.02E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887499	1.95E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887499	1.89E-03	98.2	98.2	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887499	1.84E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1

308368.6	3887499	1.78E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3887499	1.74E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3887499	1.69E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3887499	1.64E-03	97.1	97.1	1.2	PERIOD	CARTGRID	43824 CART_1
308768.6	3887499	1.60E-03	97	97	1.2	PERIOD	CARTGRID	43824 CART_1
308868.6	3887499	1.55E-03	96.2	96.2	1.2	PERIOD	CARTGRID	43824 CART_1
308968.6	3887499	1.51E-03	96	96	1.2	PERIOD	CARTGRID	43824 CART_1
309068.6	3887499	1.47E-03	96	96	1.2	PERIOD	CARTGRID	43824 CART_1
309168.6	3887499	1.43E-03	95.2	95.2	1.2	PERIOD	CARTGRID	43824 CART_1
309268.6	3887499	1.40E-03	95	95	1.2	PERIOD	CARTGRID	43824 CART_1
304368.6	3887599	2.50E-04	109.4	109.4	1.2	PERIOD	CARTGRID	43824 CART_1
304468.6	3887599	2.68E-04	109.1	109.1	1.2	PERIOD	CARTGRID	43824 CART_1
304568.6	3887599	2.89E-04	108.8	108.8	1.2	PERIOD	CARTGRID	43824 CART_1
304668.6	3887599	3.11E-04	108.7	108.7	1.2	PERIOD	CARTGRID	43824 CART_1
304768.6	3887599	3.35E-04	108.5	108.5	1.2	PERIOD	CARTGRID	43824 CART_1
304868.6	3887599	3.62E-04	108.2	108.2	1.2	PERIOD	CARTGRID	43824 CART_1
304968.6	3887599	3.91E-04	107.9	107.9	1.2	PERIOD	CARTGRID	43824 CART_1
305068.6	3887599	4.25E-04	107.9	107.9	1.2	PERIOD	CARTGRID	43824 CART_1
305168.6	3887599	4.62E-04	107.6	107.6	1.2	PERIOD	CARTGRID	43824 CART_1
305268.6	3887599	5.03E-04	107.5	107.5	1.2	PERIOD	CARTGRID	43824 CART_1
305368.6	3887599	5.49E-04	107.3	107.3	1.2	PERIOD	CARTGRID	43824 CART_1
305468.6	3887599	6.00E-04	107	107	1.2	PERIOD	CARTGRID	43824 CART_1
305568.6	3887599	6.58E-04	106.7	106.7	1.2	PERIOD	CARTGRID	43824 CART_1
305668.6	3887599	7.23E-04	106.3	106.3	1.2	PERIOD	CARTGRID	43824 CART_1
305768.6	3887599	7.98E-04	106	106	1.2	PERIOD	CARTGRID	43824 CART_1
305868.6	3887599	8.85E-04	105.7	105.7	1.2	PERIOD	CARTGRID	43824 CART_1
305968.6	3887599	9.85E-04	105.4	105.4	1.2	PERIOD	CARTGRID	43824 CART_1
306068.6	3887599	1.09E-03	105.1	105.1	1.2	PERIOD	CARTGRID	43824 CART_1
306168.6	3887599	1.20E-03	104.8	104.8	1.2	PERIOD	CARTGRID	43824 CART_1
306268.6	3887599	1.31E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306368.6	3887599	1.43E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306468.6	3887599	1.57E-03	104	104	1.2	PERIOD	CARTGRID	43824 CART_1
306568.6	3887599	1.71E-03	103.9	103.9	1.2	PERIOD	CARTGRID	43824 CART_1
306668.6	3887599	1.82E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
306768.6	3887599	1.93E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
306868.6	3887599	2.02E-03	103	103	1.2	PERIOD	CARTGRID	43824 CART_1
306968.6	3887599	2.08E-03	102	102	1.2	PERIOD	CARTGRID	43824 CART_1
307068.6	3887599	2.14E-03	102	102	1.2	PERIOD	CARTGRID	43824 CART_1
307168.6	3887599	2.16E-03	101.9	101.9	1.2	PERIOD	CARTGRID	43824 CART_1
307268.6	3887599	2.15E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307368.6	3887599	2.12E-03	101	101	1.2	PERIOD	CARTGRID	43824 CART_1
307468.6	3887599	2.07E-03	100.3	100.3	1.2	PERIOD	CARTGRID	43824 CART_1
307568.6	3887599	2.02E-03	100	100	1.2	PERIOD	CARTGRID	43824 CART_1
307668.6	3887599	1.97E-03	100	100	1.2	PERIOD	CARTGRID	43824 CART_1
307768.6	3887599	1.91E-03	99.9	99.9	1.2	PERIOD	CARTGRID	43824 CART_1
307868.6	3887599	1.85E-03	99	99	1.2	PERIOD	CARTGRID	43824 CART_1
307968.6	3887599	1.81E-03	99	99	1.2	PERIOD	CARTGRID	43824 CART_1
308068.6	3887599	1.75E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308168.6	3887599	1.71E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308268.6	3887599	1.67E-03	98	98	1.2	PERIOD	CARTGRID	43824 CART_1
308368.6	3887599	1.62E-03	97.3	97.3	1.2	PERIOD	CARTGRID	43824 CART_1
308468.6	3887599	1.58E-03	97	97	1.2	PERIOD	CARTGRID	43824 CART_1
308568.6	3887599	1.55E-03	97	97	1.2	PERIOD	CARTGRID	43824 CART_1
308668.6	3887599	1.51E-03	96.9	96.9	1.2	PERIOD	CARTGRID	43824 CART_1

308768.6	3887599	1.47E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887599	1.44E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887599	1.40E-03	95.9	95.9	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887599	1.37E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887599	1.34E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887599	1.31E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887699	2.51E-04	108.7	108.7	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887699	2.68E-04	108.4	108.4	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887699	2.88E-04	108.2	108.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887699	3.09E-04	108	108	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887699	3.31E-04	107.5	107.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887699	3.57E-04	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887699	3.84E-04	107.1	107.1	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887699	4.15E-04	106.9	106.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887699	4.48E-04	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887699	4.85E-04	106.9	106.9	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887699	5.24E-04	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887699	5.66E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887699	6.13E-04	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887699	6.64E-04	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887699	7.23E-04	105.5	105.5	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887699	7.90E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887699	8.65E-04	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887699	9.44E-04	104.7	104.7	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887699	1.02E-03	104.4	104.4	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887699	1.10E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887699	1.18E-03	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887699	1.27E-03	103.4	103.4	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887699	1.37E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887699	1.46E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887699	1.54E-03	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887699	1.61E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887699	1.68E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887699	1.74E-03	101.6	101.6	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887699	1.77E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887699	1.79E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887699	1.79E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887699	1.78E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887699	1.76E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887699	1.72E-03	99.4	99.4	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887699	1.69E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887699	1.66E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887699	1.62E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887699	1.59E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887699	1.55E-03	97.6	97.6	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887699	1.52E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887699	1.49E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887699	1.45E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887699	1.42E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887699	1.39E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887699	1.36E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887699	1.33E-03	95.4	95.4	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887699	1.30E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887699	1.28E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1

309168.6	3887699	1.25E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887699	1.22E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887799	2.51E-04	108.1	108.1	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887799	2.68E-04	107.9	107.9	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887799	2.86E-04	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887799	3.06E-04	107.2	107.2	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887799	3.28E-04	106.8	106.8	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887799	3.51E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887799	3.76E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887799	4.04E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887799	4.33E-04	106.4	106.4	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887799	4.63E-04	106.1	106.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887799	4.96E-04	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887799	5.31E-04	105.8	105.8	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887799	5.68E-04	105.5	105.5	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887799	6.09E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887799	6.56E-04	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887799	7.09E-04	104.6	104.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887799	7.68E-04	104.4	104.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887799	8.28E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887799	8.85E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887799	9.46E-04	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887799	1.00E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887799	1.07E-03	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887799	1.14E-03	102.5	102.5	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887799	1.21E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887799	1.27E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887799	1.34E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887799	1.39E-03	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887799	1.44E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887799	1.49E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887799	1.51E-03	100.2	100.2	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887799	1.53E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887799	1.53E-03	99.5	99.5	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887799	1.53E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887799	1.52E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887799	1.50E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887799	1.48E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887799	1.46E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887799	1.44E-03	97.1	97.1	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887799	1.41E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887799	1.39E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887799	1.36E-03	96.1	96.1	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887799	1.34E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887799	1.31E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887799	1.29E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887799	1.26E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887799	1.24E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887799	1.21E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887799	1.19E-03	94.2	94.2	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887799	1.17E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887799	1.14E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887899	2.51E-04	107.6	107.6	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887899	2.67E-04	107.3	107.3	1.2	PERIOD	CARTGRID	43824	CART_1

304568.6	3887899	2.84E-04	107	107	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887899	3.03E-04	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887899	3.23E-04	106.3	106.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887899	3.44E-04	106.1	106.1	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3887899	3.66E-04	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887899	3.90E-04	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887899	4.15E-04	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887899	4.40E-04	105.4	105.4	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887899	4.66E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887899	4.94E-04	105.1	105.1	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887899	5.24E-04	104.8	104.8	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887899	5.59E-04	104.6	104.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887899	5.97E-04	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887899	6.40E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887899	6.88E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887899	7.36E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887899	7.81E-04	103.5	103.5	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887899	8.26E-04	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887899	8.75E-04	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887899	9.22E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887899	9.77E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887899	1.03E-03	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887899	1.08E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887899	1.13E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887899	1.18E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887899	1.23E-03	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887899	1.27E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887899	1.30E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887899	1.32E-03	99.6	99.6	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887899	1.33E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887899	1.34E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887899	1.34E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887899	1.33E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887899	1.33E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887899	1.31E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887899	1.30E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887899	1.29E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887899	1.27E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887899	1.25E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887899	1.23E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887899	1.21E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887899	1.19E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887899	1.17E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887899	1.15E-03	94.6	94.6	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887899	1.13E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887899	1.11E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887899	1.09E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887899	1.07E-03	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3887999	2.50E-04	106.9	106.9	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3887999	2.65E-04	106.6	106.6	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3887999	2.81E-04	106.2	106.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3887999	2.98E-04	106	106	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3887999	3.16E-04	105.7	105.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3887999	3.35E-04	105.6	105.6	1.2	PERIOD	CARTGRID	43824	CART_1

304968.6	3887999	3.55E-04	105.3	105.3	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3887999	3.75E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3887999	3.95E-04	105	105	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3887999	4.15E-04	104.8	104.8	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3887999	4.37E-04	104.7	104.7	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3887999	4.60E-04	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3887999	4.85E-04	104.4	104.4	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3887999	5.13E-04	104.1	104.1	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3887999	5.45E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3887999	5.82E-04	103.8	103.8	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3887999	6.21E-04	103.5	103.5	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3887999	6.60E-04	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3887999	6.98E-04	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3887999	7.34E-04	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3887999	7.71E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3887999	8.12E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3887999	8.53E-04	101.6	101.6	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3887999	8.92E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3887999	9.33E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3887999	9.75E-04	100.7	100.7	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3887999	1.02E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3887999	1.06E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3887999	1.10E-03	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3887999	1.13E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3887999	1.15E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3887999	1.17E-03	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3887999	1.18E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3887999	1.19E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3887999	1.19E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3887999	1.19E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3887999	1.19E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3887999	1.18E-03	96.2	96.2	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3887999	1.17E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3887999	1.16E-03	95.9	95.9	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3887999	1.15E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3887999	1.14E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3887999	1.12E-03	94.9	94.9	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3887999	1.11E-03	94.6	94.6	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3887999	1.09E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3887999	1.07E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3887999	1.06E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3887999	1.04E-03	93.6	93.6	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3887999	1.02E-03	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3887999	1.01E-03	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3888099	2.48E-04	106.3	106.3	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3888099	2.62E-04	105.9	105.9	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3888099	2.77E-04	105.8	105.8	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3888099	2.92E-04	105.5	105.5	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3888099	3.08E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3888099	3.24E-04	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3888099	3.41E-04	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3888099	3.58E-04	104.6	104.6	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3888099	3.74E-04	104.3	104.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3888099	3.90E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1

305368.6	3888099	4.08E-04	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3888099	4.27E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3888099	4.48E-04	103.7	103.7	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3888099	4.73E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3888099	5.01E-04	103.4	103.4	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3888099	5.32E-04	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3888099	5.66E-04	102.9	102.9	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3888099	5.98E-04	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3888099	6.30E-04	102.5	102.5	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3888099	6.59E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3888099	6.91E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3888099	7.20E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3888099	7.54E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3888099	7.88E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3888099	8.18E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3888099	8.54E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3888099	8.91E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3888099	9.25E-04	99.2	99.2	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3888099	9.60E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3888099	9.91E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3888099	1.01E-03	98.2	98.2	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3888099	1.03E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3888099	1.05E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3888099	1.06E-03	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3888099	1.07E-03	97.5	97.5	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3888099	1.07E-03	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3888099	1.07E-03	96.2	96.2	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3888099	1.07E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3888099	1.07E-03	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3888099	1.07E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3888099	1.06E-03	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3888099	1.05E-03	94.2	94.2	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3888099	1.04E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3888099	1.03E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3888099	1.02E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3888099	1.01E-03	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3888099	9.90E-04	93.1	93.1	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3888099	9.77E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3888099	9.64E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3888099	9.51E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3888199	2.46E-04	105.5	105.5	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3888199	2.58E-04	105.2	105.2	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3888199	2.71E-04	104.9	104.9	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3888199	2.85E-04	104.8	104.8	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3888199	2.99E-04	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3888199	3.12E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3888199	3.26E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3888199	3.39E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3888199	3.53E-04	103.9	103.9	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3888199	3.66E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3888199	3.81E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3888199	3.97E-04	103.3	103.3	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3888199	4.16E-04	103.2	103.2	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3888199	4.37E-04	103	103	1.2	PERIOD	CARTGRID	43824	CART_1

305768.6	3888199	4.62E-04	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3888199	4.90E-04	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3888199	5.19E-04	102.4	102.4	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3888199	5.46E-04	102.1	102.1	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3888199	5.73E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3888199	5.99E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3888199	6.22E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3888199	6.49E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3888199	6.73E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3888199	7.01E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3888199	7.30E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3888199	7.57E-04	99.3	99.3	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3888199	7.88E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3888199	8.20E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3888199	8.49E-04	98.3	98.3	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3888199	8.76E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3888199	9.01E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3888199	9.21E-04	97.9	97.9	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3888199	9.35E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3888199	9.50E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3888199	9.63E-04	97.3	97.3	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3888199	9.67E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3888199	9.74E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3888199	9.79E-04	95.9	95.9	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3888199	9.78E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3888199	9.79E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3888199	9.75E-04	94.3	94.3	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3888199	9.70E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3888199	9.65E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3888199	9.58E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3888199	9.50E-04	93.9	93.9	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3888199	9.38E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3888199	9.29E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3888199	9.19E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3888199	9.06E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3888199	8.95E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3888299	2.42E-04	104.8	104.8	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3888299	2.53E-04	104.5	104.5	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3888299	2.65E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3888299	2.76E-04	104.1	104.1	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3888299	2.88E-04	103.8	103.8	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3888299	2.99E-04	103.8	103.8	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3888299	3.10E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3888299	3.21E-04	103.5	103.5	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3888299	3.32E-04	103.3	103.3	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3888299	3.43E-04	103.1	103.1	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3888299	3.56E-04	102.9	102.9	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3888299	3.70E-04	102.6	102.6	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3888299	3.87E-04	102.5	102.5	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3888299	4.06E-04	102.3	102.3	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3888299	4.28E-04	102	102	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3888299	4.53E-04	101.9	101.9	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3888299	4.78E-04	101.8	101.8	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3888299	5.02E-04	101.7	101.7	1.2	PERIOD	CARTGRID	43824	CART_1

306168.6	3888299	5.25E-04	101.5	101.5	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3888299	5.47E-04	101.4	101.4	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3888299	5.68E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3888299	5.89E-04	100.7	100.7	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3888299	6.10E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3888299	6.33E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3888299	6.54E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3888299	6.80E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3888299	7.07E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3888299	7.32E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3888299	7.59E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3888299	7.85E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3888299	8.06E-04	97.4	97.4	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3888299	8.25E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3888299	8.42E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3888299	8.57E-04	96.9	96.9	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3888299	8.68E-04	96.2	96.2	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3888299	8.78E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3888299	8.85E-04	95.4	95.4	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3888299	8.91E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3888299	8.97E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3888299	8.98E-04	94.4	94.4	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3888299	8.98E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3888299	8.97E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3888299	8.95E-04	93.9	93.9	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3888299	8.89E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3888299	8.84E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3888299	8.78E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3888299	8.71E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3888299	8.62E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3888299	8.54E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3888299	8.45E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3888399	2.37E-04	104.2	104.2	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3888399	2.47E-04	104	104	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3888399	2.57E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3888399	2.67E-04	103.4	103.4	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3888399	2.76E-04	103.3	103.3	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3888399	2.85E-04	103.1	103.1	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3888399	2.94E-04	103.1	103.1	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3888399	3.03E-04	102.9	102.9	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3888399	3.12E-04	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3888399	3.22E-04	102.5	102.5	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3888399	3.34E-04	102.2	102.2	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3888399	3.46E-04	101.9	101.9	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3888399	3.62E-04	101.9	101.9	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3888399	3.79E-04	101.6	101.6	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3888399	4.00E-04	101.5	101.5	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3888399	4.22E-04	101.3	101.3	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3888399	4.43E-04	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3888399	4.64E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3888399	4.83E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3888399	5.02E-04	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3888399	5.21E-04	101	101	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3888399	5.38E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1

306568.6	3888399	5.56E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3888399	5.73E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3888399	5.94E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3888399	6.15E-04	98.2	98.2	1.2	PERIOD	CARTGRID	43824	CART_1
306968.6	3888399	6.38E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3888399	6.61E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3888399	6.83E-04	97.2	97.2	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3888399	7.05E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3888399	7.26E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3888399	7.46E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3888399	7.60E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3888399	7.75E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3888399	7.89E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3888399	7.98E-04	95.2	95.2	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3888399	8.08E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3888399	8.17E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3888399	8.21E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3888399	8.27E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3888399	8.30E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3888399	8.29E-04	93.2	93.2	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3888399	8.28E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3888399	8.27E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3888399	8.25E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3888399	8.20E-04	92.2	92.2	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3888399	8.15E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3888399	8.10E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3888399	8.04E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3888399	7.96E-04	91	91	1.2	PERIOD	CARTGRID	43824	CART_1
304368.6	3888499	2.31E-04	103.6	103.6	1.2	PERIOD	CARTGRID	43824	CART_1
304468.6	3888499	2.40E-04	103.3	103.3	1.2	PERIOD	CARTGRID	43824	CART_1
304568.6	3888499	2.48E-04	103.3	103.3	1.2	PERIOD	CARTGRID	43824	CART_1
304668.6	3888499	2.56E-04	103	103	1.2	PERIOD	CARTGRID	43824	CART_1
304768.6	3888499	2.64E-04	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
304868.6	3888499	2.71E-04	102.7	102.7	1.2	PERIOD	CARTGRID	43824	CART_1
304968.6	3888499	2.78E-04	102.4	102.4	1.2	PERIOD	CARTGRID	43824	CART_1
305068.6	3888499	2.86E-04	102.4	102.4	1.2	PERIOD	CARTGRID	43824	CART_1
305168.6	3888499	2.94E-04	102.1	102.1	1.2	PERIOD	CARTGRID	43824	CART_1
305268.6	3888499	3.03E-04	101.8	101.8	1.2	PERIOD	CARTGRID	43824	CART_1
305368.6	3888499	3.13E-04	101.5	101.5	1.2	PERIOD	CARTGRID	43824	CART_1
305468.6	3888499	3.25E-04	101.2	101.2	1.2	PERIOD	CARTGRID	43824	CART_1
305568.6	3888499	3.39E-04	101.1	101.1	1.2	PERIOD	CARTGRID	43824	CART_1
305668.6	3888499	3.56E-04	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
305768.6	3888499	3.74E-04	100.9	100.9	1.2	PERIOD	CARTGRID	43824	CART_1
305868.6	3888499	3.93E-04	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
305968.6	3888499	4.13E-04	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
306068.6	3888499	4.31E-04	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
306168.6	3888499	4.48E-04	100.6	100.6	1.2	PERIOD	CARTGRID	43824	CART_1
306268.6	3888499	4.64E-04	100.3	100.3	1.2	PERIOD	CARTGRID	43824	CART_1
306368.6	3888499	4.80E-04	100	100	1.2	PERIOD	CARTGRID	43824	CART_1
306468.6	3888499	4.94E-04	99.6	99.6	1.2	PERIOD	CARTGRID	43824	CART_1
306568.6	3888499	5.09E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306668.6	3888499	5.25E-04	99	99	1.2	PERIOD	CARTGRID	43824	CART_1
306768.6	3888499	5.41E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1
306868.6	3888499	5.61E-04	98	98	1.2	PERIOD	CARTGRID	43824	CART_1

306968.6	3888499	5.81E-04	97.9	97.9	1.2	PERIOD	CARTGRID	43824	CART_1
307068.6	3888499	6.00E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307168.6	3888499	6.20E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307268.6	3888499	6.41E-04	97	97	1.2	PERIOD	CARTGRID	43824	CART_1
307368.6	3888499	6.57E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307468.6	3888499	6.75E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307568.6	3888499	6.92E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307668.6	3888499	7.07E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307768.6	3888499	7.20E-04	96	96	1.2	PERIOD	CARTGRID	43824	CART_1
307868.6	3888499	7.29E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
307968.6	3888499	7.40E-04	95	95	1.2	PERIOD	CARTGRID	43824	CART_1
308068.6	3888499	7.47E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308168.6	3888499	7.56E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308268.6	3888499	7.63E-04	94	94	1.2	PERIOD	CARTGRID	43824	CART_1
308368.6	3888499	7.66E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308468.6	3888499	7.69E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308568.6	3888499	7.70E-04	93	93	1.2	PERIOD	CARTGRID	43824	CART_1
308668.6	3888499	7.70E-04	92.9	92.9	1.2	PERIOD	CARTGRID	43824	CART_1
308768.6	3888499	7.68E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
308868.6	3888499	7.67E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
308968.6	3888499	7.64E-04	92	92	1.2	PERIOD	CARTGRID	43824	CART_1
309068.6	3888499	7.61E-04	91.9	91.9	1.2	PERIOD	CARTGRID	43824	CART_1
309168.6	3888499	7.55E-04	91	91	1.2	PERIOD	CARTGRID	43824	CART_1
309268.6	3888499	7.51E-04	91	91	1.2	PERIOD	CARTGRID	43824	CART_1
307766.6	3885605	1.98E-02	113	113	1.2	PERIOD	SENSITIV	43824	Res
307078.6	3885549	1.27E-02	116	116	1.2	PERIOD	SENSITIV	43824	Res
304776.8	3885631	2.12E-04	122.99	122.99	1.2	PERIOD	SENSITIV	43824	Res
307667.3	3888262	8.90E-04	97	97	1.2	PERIOD	SENSITIV	43824	Res
308570.7	3883694	3.07E-04	129.62	129.62	1.2	PERIOD	SENSITIV	43824	Res
308518	3883655	2.84E-04	130.13	130.13	1.2	PERIOD	SENSITIV	43824	Res
307759.3	3887049	3.93E-03	102.73	102.73	1.2	PERIOD	SENSITIV	43824	Res

DPM Emission Rates for HRA[1]

	APN/FID[2]	Area (m^2)	Proportion	Total Emissions (lbs) 2023	2024	Total	Annual Emissions (lbs/yr) 2023	2024	Total	Max Hr Emissions (lbs/hr) 2023	2024	MAX
Kern County (SJVAPCD)	295-130-78_1	1,978,988	95.44%	779.439	19.010	798.449	779.439	19.010	598.837	0.387	0.028	0.3866
Kern County (SJVAPCD)	295-130-78_2	35,825	1.73%	14.110	0.344	14.454	14.110	0.344	10.841	0.007	0.001	0.0070
Kern County (SJVAPCD)	295-130-78_3	2,788	0.13%	1.098	0.027	1.125	1.098	0.027	0.844	0.001	0.000	0.0005
Kern County (SJVAPCD)	295-130-78_4	725	0.03%	0.286	0.007	0.293	0.286	0.007	0.219	0.000	0.000	0.0001
Kern County (SJVAPCD)	295-130-36	29,089	1.40%	11.457	0.279	11.736	11.457	0.279	8.802	0.006	0.000	0.0057
Kern County (SJVAPCD)	295-130-80	26,219	1.26%	10.327	0.252	10.578	10.327	0.252	7.934	0.005	0.000	0.0051
	Total	***2,073,634***	100.00%	816.716	19.919	836.636	816.716	19.919	627.477	0.405	0.030	0.387

Construction Information:		
Total Construction Period	336	days
2023 Construction Period	252	days
2024 Construction Period	84	days
Work Day Hours	8	hours
Schedule (M-F)	5	days
Max Construction in One Year	252	days

For All Sources:			
Release height[3]	5	m	
Unit rate EF	1	g/s-m^2	(default)
Urban Opt	blank		

Emissions Inventory			
PM10 Emissions (lbs)	**2023**	**2024**	**Total**
Onsite Diesel Equipment Exhaust	739.41	16.60	756.01
On-site Mobile Exhaust	10.32	0.99	11.31
On-road Mobile Exhaust	66.98	2.33	69.32
Total	816.72	19.92	836.64

Notes:

1. HRAs are an evaluation of localized TAC emissions therefore only on-site exhaust PM10 emissions were utilized in the HRA. Sources included are PM10 exhaust emissions from off-road diesel equipment and on-site mobile emissions. See Appendix AQ-GHG for emissions by year.
2. Project site parcels were modeled as individual area sources
3. SCAQMD construction mid-rise release height: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf

Toxic Air Contaminant Health Risk Analysis

Carcinogenic

Cancer Health Risk

Dose [air] = Concentration [air] * DBR * Absorption * EF * 10^-6

Risk = Dose * Cancer Potency * ASF * FAH * (ED/AT)

Where:

DBR =	Daily Breathing Rate normalized to body weight for age class (L/kg BW-day)
A =	Absorption - assumed to be 1.0 (100%)
EF =	Exposure Frequency = days present/365 days Usually 0.96 (350/365 to account for 2 week vacation)
ASF =	Age Sensitivity Factor
FAH =	Fraction of Time at Home
ED =	Exposure duration in years
AT =	Averaging time (always 70 yrs)

Non-Carcinogenic

Risk Equation

Hazard Quotient = Concentration/Chronic Inhalation Reference Exposure Level

Hazard Index = Sum of all Hazard Quotients (HQs)

Construction Duration: 16 months 1.3 years

Deconstruction *16 months* 1.3 years

	Age Bin						
	3rd trimester	0<2 yrs	2<9 yrs	2<16 yrs	16<30 yrs	16-70 yrs	
DBR =	361	1090	861	745	335	290	*Note: 95 percentile*
A =	1.0	1.0	1.0	1.0	1.0	1.0	
EF =	0.96	0.96	0.96	0.96	0.96	0.96	
ASF =	10	10	3	3	1	1	
FAH =	1	1	1	1	1	1	
ED =	0.25	1.33	1.33	1.33	1.33	1.33	Construction Only
ED =	*0.25*	*1.33*	*1.33*	*1.33*	*1.33*	*1.33*	*Construction and Deconstruction*
ED =	*0.25*	*2.00*	*7.00*	*14.00*	*14.00*	*54.00*	*Lifetime exposure*
AT =	70	70	70	70	70	70	
Cancer Risk Factor:	1.24E-05	1.99E-04	4.72E-05	4.08E-05	6.12E-06	5.30E-06	Construction Only
Cancer Risk Factor:	*1.24E-05*	*1.99E-04*	*4.72E-05*	*4.08E-05*	*6.12E-06*	*5.30E-06*	*Construction and Deconstruction*
Cancer Risk Factor:	*1.24E-05*	*2.99E-04*	*2.48E-04*	*4.29E-04*	*6.42E-05*	*2.15E-04*	*Lifetime exposure*

Methodology Source: California EPA, Office of Environmental Health Hazard Assessment (February 2015). Air Toxics Hot Spots Program Risk Assessment Guidelines - The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

Risk Calculation For Residents

TAC:	Diesel Engine Exhaust Particulate Matter	
Cancer Potency, Inhl (mg/kg-day)^-1	1.10E+00	Cancer Slope Factor per OEHHA Appendix A: Hot Spots Unit Risk and Cancer Potency Values; http://oehha.ca.gov/air/hot_spots/tsd052909.html
Chronic Inhalation REL, ug/cu m	5.0E+00	Chronic Inhalation REL as of June 2014; http://www.oehha.ca.gov/air/Allrels.html

Construction (16 months of Exposure)

RECEPTOR ID		GRP	east	north	Concentration (µg/m3)	Carcinogenic Risk By Age Group: 3rd trimester	0<2 yrs	2<9 yrs	2<16 yrs	16<30 yrs	16-70 yrs	Summed Carcinogenic Risk	Chronic Risk HQ	
1180		CART_1	307268.6	3885899	0.032	4.28705E-07	6.90362E-06	1.63597E-06	1.41556E-06	2.12176E-07	1.83674E-07	7.33E-06	0.01	Off-site PMI
					PER MILLION	0.43	6.90	1.64	1.42	0.21	0.18	7.33		
2501	Res		307766.6	3885605	0.017	2.35703E-07	3.79562E-06	8.99457E-07	7.78276E-07	1.16654E-07	1.00984E-07	4.03E-06	0.003	MEIR
					PER MILLION	0.24	3.80	0.90	0.78	0.12	0.10	4.03		

Deconstruction (16 months, 35 years after construction)

RECEPTOR ID		GRP	east	north	Concentration (µg/m3)	Carcinogenic Risk By Age Group: 3rd trimester	0<2 yrs	2<9 yrs	2<16 yrs	16<30 yrs	16-70 yrs	Summed Carcinogenic Risk	Chronic Risk HQ	
1180		CART_1	307268.6	3885899.0	0.032	4.29E-07	6.90E-06	1.64E-06	1.42E-06	2.12E-07	1.84E-07	1.84E-07	0.01	Off-site PMI
					PER MILLION	0.43	6.90	1.64	1.42	0.21	0.18	0.18		
2501	Res		307766.6	3885605	0.017	2.36E-07	3.80E-06	8.99E-07	7.78E-07	1.17E-07	1.01E-07	1.01E-07	0.003	MEIR
					PER MILLION	0.24	3.80	0.90	0.78	0.12	0.10	0.10		

Appendix D

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

Appendix

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

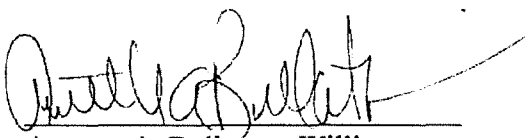
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

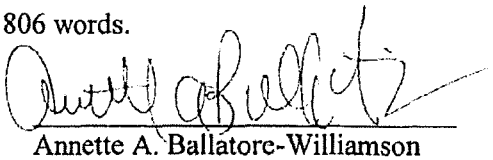
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SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
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Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
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Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

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[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra,* at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

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CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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Appendix E

Biological Resources Assessment



Jasmine Solar Project

Biological Resources Assessment

prepared for

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Executive Summary

This document provides the findings of a Biological Resources Assessment prepared by Rincon Consultants, Inc. for the proposed Jasmine Solar Project. SF Jasmine, LLC proposes to construct and operate a 70 megawatt photovoltaic energy facility and energy storage system. Power generated by the Project would be transferred to the Pacific Gas and Electric Lakeview Substation via a generation tie-line. This report documents existing conditions at the Project site and provides an assessment of potential impacts to sensitive biological resources based upon proposed Project plans.

The proposed Project site is located in the San Joaquin Valley in unincorporated Kern County, California approximately 8 miles northwest of the community of Mettler. The proposed Project will occupy 492 acres of the 520 acre Project site and an approximately 0.5 mile generation tie-in corridor.

No sensitive natural communities are located within the Project site and no regional wildlife linkages or corridors are mapped within the Project site. Project implementation would not interfere with the provisions of any applicable adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. Therefore, potential Project impacts to these sensitive resources would be less than significant.

Rincon assessed the potential for 50 special-status species (18 plant species and 32 wildlife species) to occur within the vicinity of the Project site. One special-status plant species, hispid salty bird's beak (*Chloropyron molle* ssp. *hispidum*), has low potential to occur in the Project site. Eight special-status wildlife species have potential to occur in the Project site. Five of these species have a low potential to occur: California glossy snake (*Arizona elegans occidentalis*, California Department of Fish and Wildlife [CDFW] Species of Special Concern [SSC]), San Joaquin coachwhip (*Masticophis flagellum ruddocki,* CDFW SSC), tricolored blackbird (*Agelaius tricolor*, state threatened [ST])), San Joaquin kit fox (*Vulpes macrotis mutica*, federally endangered [FE] and ST) and Swainson's hawk (*Buteo swainsoni*, ST). Burrowing owl (*Athene cunicularia*, CDFW SSC), has a moderate potential to occur. A ferruginous hawk (*Buteo regalis*, CDFW Watch List) and a loggerhead shrike (*Lanius ludovicianus*, CDFW SSC) were both observed onsite during the field reconnaissance survey on November 13, 2020.

Three excavated agricultural basins are located within the Project site. The Project plans will be designed such that impacts to the unnamed basin located near the center of the study area and the unnamed basin located in the northeast corner of the study area will be avoided. The unnamed basin located in the southeast corner of the study area, just west of the PG&E Lakeview Substation [GPS coordinates 35.094395, -119.101555 (WGS 84)] will be filled. The United States Army Corps of Engineers (USACE) has issued an Approved Jurisdictional Determination for the study area (Appendix D), confirming that none of the agricultural basins are considered Waters of the United States, and therefore would not require a USACE permit to fill. Similarly, the Central Valley Regional Water Quality Control Board (RWQCB) has confirmed via letter (Appendix E) that the three agricultural basins located within the Project site are either wetlands that are not considered Waters of the State or non-wetland Waters of the State that are excluded from the permitting procedures. Based on the issuance by the RWQCB, it is not anticipated that a permit will be required for activities, including fill, within the basin. These features, along with peripheral edges of roadways and fields could provide potentially suitable habitat for special-status species within the Project site. However, most of the site consists of tilled and heavily disturbed agricultural fields.

As a result of implementation of the proposed Project, sensitive species (including nesting birds) within the Project site could be impacted by the loss of/injury to individuals, disturbance of breeding activities, disturbance to habitat, and/or construction noise and other human disturbances. These impacts would be potentially significant but can be reduced to less than significant through implementation of mitigation measures.

1 Introduction

Rincon Consultants, Inc. (Rincon) has prepared this Biological Resources Assessment (BRA) for the Jasmine Solar Project (Project). The proposed Project is a solar energy facility and energy storage system located in southwestern Kern County, California. The Project includes an approximately 520 acre Project site plus an approximately 0.5 mile generation tie-in (gen-tie) corridor and is located on land currently zoned for agricultural use.

This BRA has been prepared for SF Jasmine, LLC to support the California Environmental Quality Act (CEQA) environmental review of the proposed Project.

1.1 Project Location

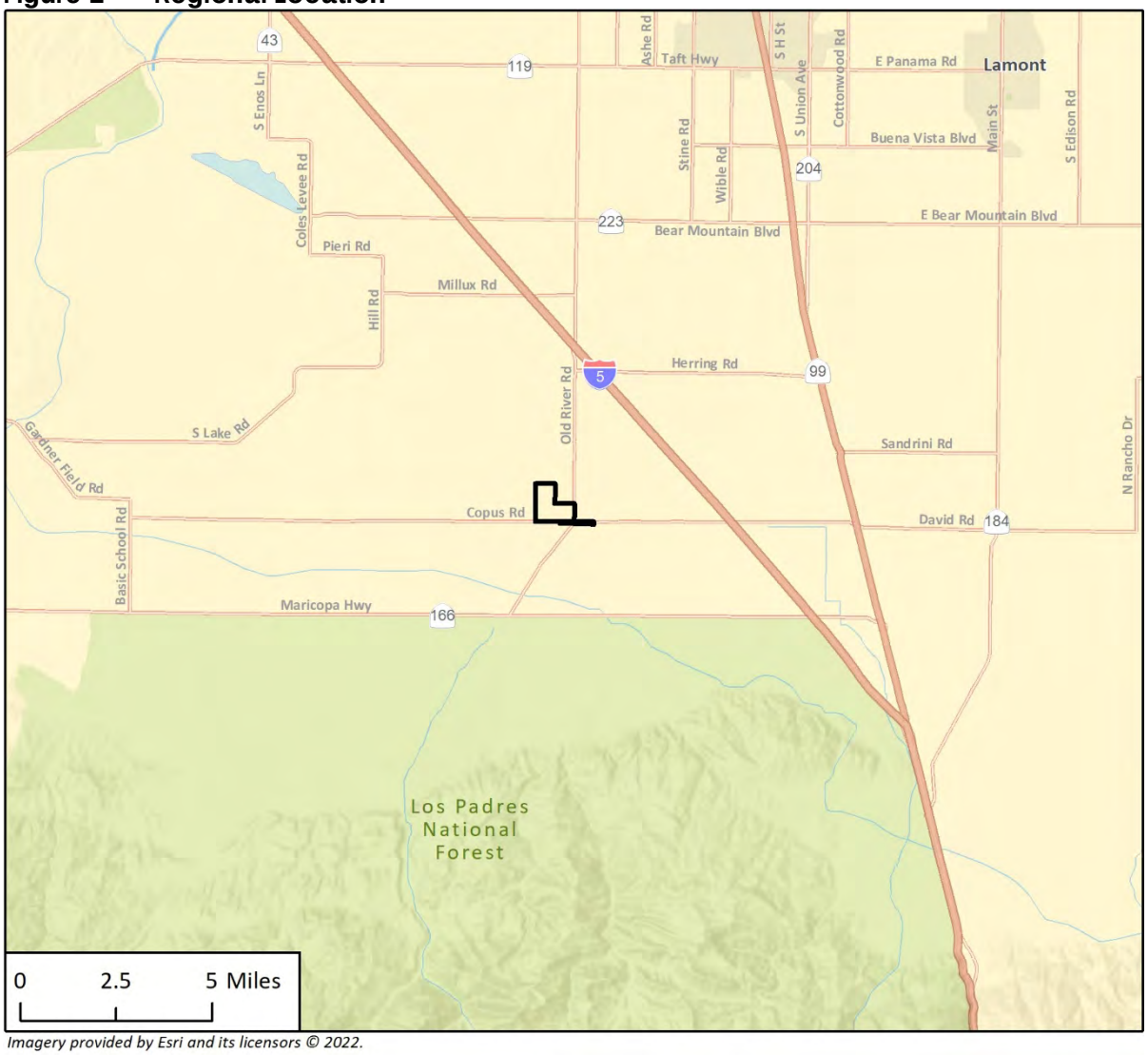
The proposed Project is located in the San Joaquin Valley in southwestern unincorporated Kern County, California (Figure 1). The Project is located approximately 8 miles northwest of the community of Mettler and approximately 10 miles east of the community of San Emidio, approximately 2 miles southwest of Interstate Highway 5 and approximately 2 miles north of California State Route 166. The Project site falls within the *Conner SW, California* and *Coal Oil Canyon, California* United States Geological Survey (USGS) 7.5-minute topographic quadrangles. The approximate center of the Project site is located at latitude 35.099453°North and longitude 119.121042°West (World Geodetic System [WGS] 84). The USGS Public Lands Survey System maps the area as Township 32 south, Range 27 east, Mount Diablo Meridian. The Project site is on Assessor's Parcel Number (APN) 295-130-78, 295-130-36 (parcel split pending), 295-130-80 (parcel split pending) and the proposed gen-tie corridor runs through APNs 295-130-36 and 295-130-80. The Project site is bounded by unpaved dirt roads to the north and west. Old River Road runs north to south along the eastern boundary of the Project site. Copus Road runs along the southern boundary of the project site and northern boundary of the gen-tie corridor. The Project site is surrounded by actively farmed agricultural land, zoned as Intensive Agriculture by the Kern County General Plan. Site photos are presented in Appendix A

1.2 Project Description

The proposed Project consists of an approximately 492 acre photovoltaic (PV) energy facility (Facility) and energy storage system capable of producing up to 70 megawatts of power. Power generated by the Project will be transferred to the Pacific Gas and Electric (PG&E) Lakeview Substation via a 0.5 mile gen-tie line that will enter through the northwest corner of the substation property. The Project is expected to be placed in service by the end of 2023. The proposed Facility would consist of PV modules and trackers, inverters and medium voltage transformers, Direct Current (DC) collection, an onsite substation, battery storage, telecommunications, meteorological data collection, lighting signage, access roads, and the gen-tie corridor. Each of these Project components is described in more detail below.

PV Modules and Trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The tracking systems are supported by metal posts (piles) that are driven into the ground with a pile driving machine. Pile placement begins with a precise surveyed layout, ensuring proper positioning of tracker assembly parts. Affixed to the top of each pile is a pile cap and bearing assembly that supports and allows proper movement of the

Figure 1 Regional Location



torque tube assembly. Single axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with a mechanical drive arm and tube assembly that "pushes and pulls" the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small-geared motor mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The panels are typically constructed of blue or black glass. A plastic binding material and frame provides structural rigidity. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed Facility would be certified to comply with industry standard quality testing. Panels would be electrically connected. The proposed Facility will be designed in accordance with local and state codes and regulations. The final panel selection would be determined at the detailed project-engineering phase per market availability.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS.

The proposed Facility's panels would be organized in rows in a uniform grid pattern, with each row separated by between 10 to 20 feet (from post to post). Another mechanical feature of the proposed Project's tracker system includes a wire management system that would provide support and containment of the DC wires used to collect the output of the panels and move output to the PCS. The panel and tracker features allow for a natural light regime between and under the panels, supporting the co-management of solar energy generation, agriculture, and wildlife.

Inverters and Medium Voltage Transformers. The proposed Facility inverters, transformers, and other electrical equipment comprise each PCS. The footprint of each PCS, which is generally mounted on a concrete pad or piles, would be approximately 12 feet by 30 feet. The proposed Project would require approximately 40 PCS, depending on final design details. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5 kV). The Project would use Power Electronic HEM Central inverters or equivalent and one medium voltage transformer per inverter. Each inverter and transformer would be installed as per the manufacturer's requirements.

Electrical Collection and Distribution System. The DC output of multiple rows of PV modules connected in series would be collected through one or more combiner boxes and associated electrical wiring located throughout the Project site. The power would be delivered via an underground cable network to the inverters in the electrical equipment enclosures at the PCS, described above. Multiple transformers electrically connected in series would deliver AC power to the Project Substation located on-site.

Project Substation. The Project Substation is proposed to be in the southeast corner of APN 295-130-78. The Project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. To allow for interconnection with the proposed project, the Project Substation will be expanded to accommodate for additional electrical equipment, breaker, and control switching equipment. The Project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system

restores operations. The Project Substation would also contain a control house building. The Project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

The Project Substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission, California Independent System Operator, Utility monitoring, and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Telecommunications. The proposed Facility would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line, installed above and/or below ground, attached to either existing utility lines located outside of the Project or the new gen-tie. The proposed Facility telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the point of connection to existing telecommunications infrastructure and the Lakeview Substation. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection to the existing telecommunication facilities would be within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) coming into the Substations as part of the standard substation design criteria. Below ground installations are usually installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Telecommunication lines may also be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The Facility will also have internal telecommunications expected to be provided by the local provider in the area.

Meteorological Data Collection System. The proposed Facility would require up to four meteorological data collection systems. The systems, which would be mounted at various locations throughout the proposed Facility, would include a variety of instruments to collect meteorological data. Meteorological data would be collected at the maximum height of the solar panels or approximately 15 feet above the ground.

Battery Storage Component. The proposed Facility may include the installation of a battery storage component. Storage components are advantageous for renewable energy projects because they allow energy to be reliably fed to the grid from an otherwise intermittent energy production source. The battery system would consist of commercially available lithium-ion batteries housed in enclosures. The enclosures would be approximately 8 feet wide by 40 feet long by 9.5 feet high (2.4 meters wide by 12 meters long by 2.9 meters high). The battery storage component would have a footprint of approximately 1 acre and would be immediately adjacent to the Project's Substation. Site preparation required for the battery storage enclosures requires leveling the area for a flat concrete foundation.

The proposed lithium-ion batteries would principally comply with the UL 9450 standard for outdoor energy storage enclosures. The Project will be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The Applicant would select Battery Energy Storage System (BESS) providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of lithium-ion stationary BESS.

The Project would include current best practices for fire safety. The BESS would contain a safety system as required by National Fire Protection Association 855 and tested under the UL LLC. 9540A

Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The enclosure wall is designed to contain fire and prevent propagation

Lighting. The proposed Facility lighting would allow for ongoing maintenance and security. Low-level lighting may be installed at the entry gates, Project Substation, inverter pads, and Operations & Maintenance Building. Proposed Facility lighting outside of the substation would be downward facing, shielded or otherwise modified to minimize emission of light or glare beyond the property line, or upward into the sky.

Signage. Proposed Facility signage installed on the fence in the vicinity of the main entry gates would identify the Project owner, operator, and emergency contacts and provide safety and security information. Small-scale signage would be posted at the main entry gates and intermittently along the perimeter fencing on exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security and safety purposes. All signage would conform to Kern County signage requirements.

The Generation-Tie In. The 70 Kilovolt (kV) gen-tie would interconnect the Project Substation to the existing PG&E Lakeview Substation. The gen-tie is proposed to extend to the west from the Project Substation for approximately 0.60 miles. The gen-tie right-of way would be from 25 to 75 feet wide. Approximately 25 new poles would be installed to accommodate the gen-tie. The new poles would be constructed of either steel or wood at a maximum of 125 feet tall.

Access Roads. The proposed Facility would be primarily accessed off Copus Rd and Old River Rd adjacent to the Project site and gen-tie corridor. Interior access within the solar array area would be approximately 20 foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions

Lakeview Substation. The existing Lakeview Substation, operated by PG&E, would require modifications to accommodate the proposed Project gen-tie connection. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment would require the expansion of the existing Lakeview Substation, including the filling of the agricultural pond directly west of the substation.

2 Methodology

2.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by Federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, Kern County).

Definition of Special-status Species

For the purposes of this report, special-status species include:

- Species listed as candidate, threatened, or endangered under the Federal Endangered Species Act (FESA), and species that are under review may be included if there is a reasonable expectation of listing within the life of the Project;
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA);
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW);
- Species designated as sensitive by the U.S. Forest Service or Bureau of Land Management, if the Project would affect lands administered by these agencies; and
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- CEQA
- FESA
- CESA
- Federal Clean Water Act
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Kern County General Plan
- Kern County Municipal Code

Special-status Habitats and Species

Special-status habitats are vegetation types, associations, or sub-associations that support concentrations of special-status plant or animal species, are of relatively limited distribution, or are of particular value to wildlife.

Listed species are those taxa that are formally listed as endangered or threatened by the federal government (e.g. USFWS), pursuant to the FESA or as endangered, threatened, or rare (for plants only) by the State of California (i.e. CFGC), pursuant to the CESA or the California Native Plant Protection Act (NPPA). Some species are considered rare (but not formally listed) by resource agencies, organizations with biological interests/expertise (e.g., Audubon Society, California Native Plant Society (CNPS), The Wildlife Society), and the scientific community.

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the study area include:

- U.S. Army Corps of Engineers ([USACE], wetlands and other waters of the United States)
- Central Valley Regional Water Quality Control Board ([RWQCB], waters of the State)
- USFWS (federally listed species and migratory birds)
- CDFW (riparian areas, streambeds, and lakes, state-listed species, Species of Special Concern, nesting birds)
- Kern County

U.S. Army Corps of Engineers

Under Section 404 of the Clean Water Act, the USACE has authority to regulate activities that could discharge fill of material into wetlands or other "waters of the United States." Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters (typically a navigable water). The USACE also implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetland value or acres. In achieving the goals of the Clean Water Act, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any fill of wetlands that are hydrologically connected to jurisdictional waters would require a permit from the USACE prior to the start of work. Typically, when a Project involves impacts to waters of the United States, the goal of no net loss of wetland acres or values is met through avoidance and minimization to the extent practicable, followed by compensatory mitigation involving creation or enhancement of similar habitats.

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (SWRCB) and local RWQCB have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state.

The SWRCB or local RWQCB have not established regulations for field determinations of waters of the state except for wetlands currently. The RWQCB are affected by or shares USACE jurisdiction unless isolated conditions or ephemeral waters are present. Each local RWQCB may delineate their jurisdictions of waters of the state differently based on current interpretations of jurisdiction.

Procedures for defining RWQCB jurisdiction pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020.The SWRCB define an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected;
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason; and
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation.

The Porter-Cologne Act established nine RWQCB (based on hydrogeologic barriers) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SSWRCB and RWQCB have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

United States Fish and Wildlife Service

The USFWS implements the MBTA (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the FESA (16 USC § 153 et seq.). Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any federally threatened or endangered species are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan [HCP]) of the FESA, depending on the involvement by the federal government in permitting and/or

funding of the Project. The permitting process is used to determine if a Project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. “Take” under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the FESA; however, the USFWS and NMFS advise Project applicants that they could be elevated to listed status at any time.

California Department of Fish and Wildlife

The CDFW derives its authority from the CFGC. The CESA (CFGC Section 2050 et. seq.) prohibits take of state listed threatened or endangered species. Take under CESA is restricted to direct mortality of a listed species and the law does not prohibit indirect harm by way of habitat modification. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated.

The CDFW also enforces Sections 3511, 4700, 5050, and 5515 of the CFGC, which prohibits take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided.

CFGC sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level office to take any bird in violation of the federal Migratory Bird Treaty Act. CDFW administers these requirements.

Species of Special Concern (SSC) is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of Special Concern do not have any special legal status except that which may be afforded by the CFGC as noted above. The SSC category is intended by the CDFW for use as a management tool to include these species in special consideration when decisions are made concerning the development of natural lands. The CDFW also has authority to administer the NPPA (CFGC Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA’s permitting procedures would be applied to plants listed under the NPPA as “Rare.” With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Perennial, intermittent, and ephemeral streams and associated riparian vegetation, when present, also fall under the jurisdiction of the CDFW. Section 1600 *et seq*. of the CFGC (Lake and Streambed Alteration Agreements) gives the CDFW regulatory authority over activities that divert, obstruct, or alter the channel, bed, or bank of any river, stream, or lake. CDFW has not defined the term “stream” for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. Considering this, four sources of information were reviewed and considered in determining the appropriate limits of CDFW jurisdiction within the site, as discussed below. The principles presented in these materials were used to guide the delineation of on-site streams, with consideration given to the relevance (i.e., jurisdiction, applicability) of each source to the Project and resources at hand.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus;
  - Have banks and a channel;
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry;
  - Represent the depression between the banks worn by the regular and usual flow of the water;
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars;
  - Include the land that is covered by the water in its ordinary low stage; and
  - Include lands below the ordinary high water mark (OHWM).
- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently;
  - Flows through a bed or channel having banks;
  - Supports fish or aquatic life;
  - Can be dry for a period of time; and
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation.
- **Guidance documents**, including A Field Guide to Lake and Streambed Alteration Agreements (CDFW 1994a) and Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically;
  - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years);
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form);
  - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse;
  - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife;

- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system; and
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk.

Local Jurisdiction

Kern County General Plan

The Kern County General Plan includes the "Land Use, Open Space, and Conservation Element" which aims to assure "the conservation of Kern County's agricultural, natural, and resource attributes." This is supported by Policy 28 of 1.10.15 Threatened and Endangered Species which states that the "County will work closely with State and federal agencies to assure that discretionary Projects avoid or minimize impacts to fish, wildlife, and botanical resources." Additionally, Policy 32 states that "riparian areas will be managed in accordance with USACE, and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses with acknowledging existing land use patterns." Policy 65 of 1.10.10 Oak Tree Conservation protects oak woodlands and large oak trees.

Kern County Municipal Code

The City of Kern County Municipal Code Chapter 19.73 (Kern River Corridor Combining District) prohibits the removal of live native trees with a trunk diameter greater than eight inches, measured at four feet above grade.

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed Project would have a significant effect on biological resources if it would:

a) *Have substantial adverse effects, 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, and regulations or by the California Department of Fish and Wildlife or US 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.*

2.2 Study Area

The study area evaluated for this analysis includes the entire 520 acre Project footprint, which includes approximately 492 acres that will be developed with the proposed Facility and approximately 0.5 mile gen-tie corridor (Figure 2) plus standard buffers as applicable for various species (e.g., 0.5 mile for raptor nests), as feasible. Rincon did not have authorized access to any private lands adjacent to the proposed Project, and all buffer areas were evaluated from public roads.

2.3 Literature Review

Rincon reviewed relevant agency databases and literature for baseline information on biological resources potentially occurring within the *Coal Oil Canyon, California* USGS 7.5-minute quadrangle and surrounding eight quadrangles: *Conner SW*, *Millux, Conner, Weed Patch, Mettler, Eagle Rest Peak, Pleito Hills, and Grapevine, California*. The review included information available in peer-reviewed journals, standard reference materials, and agency and public databases. Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data for the study area and vicinity were also reviewed. Preliminary desktop mapping of land-cover types was completed based on the review of background literature and aerial imagery and verified and confirmed during the field reconnaissance surveys.

Queries of the CDFW California Natural Diversity Database (CNDDB, CDFW 2020a), the CNPS Online Inventory of Rare and Endangered Plants of California (CNPS 2020), the Biogeographic Information and Observation System (BIOS, CDFW 2020b), the USFWS Information for Planning and Consultation (IPaC, USFWS 2020a), and the USFWS Critical Habitat Portal (USFWS 2020b) were conducted for the study area and regional vicinity. The CDFW Special Animals List (CDFW 2020c), Special Vascular Plants List (CDFW 2020d), the CDFW Wildlife Habitat Relationship System (Zeiner et al. 1988), and eBird (2020) were also referenced for information on special-status species with the potential to occur within the vicinity of the study area. The results of database queries and lists of special-status species were reviewed by Rincon's regional biological experts for accuracy and completeness. The final list of special-status biological resources evaluated in this report was determined based on documented occurrences in the nine-quad search area and species known to occur in the region based on the expert opinions of local biologists.

The following resources were also reviewed for additional information on existing conditions related to biological resources within the study area:

1. United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (2020a)
2. USFWS Critical Habitat Portal (2020b)
3. National Wetlands Inventory (NWI) Mapper (USFWS 2020c)

Figure 2 Project Site



2.4 Field Reconnaissance Survey

Rincon biologists Heather Price Curran and Morgan Craig conducted a field reconnaissance survey of the study area on November 13, 2020, from 0800 to 1530. During the survey, temperatures ranged from 44 to 68 degrees Fahrenheit (°F), wind speeds ranged from 0 to 8 mph, and there was 0% cloud cover. Meandering pedestrian surveys were conducted around the entire perimeter of the proposed solar facility site and throughout the gen-tie corridor. The majority of the study area consists of actively farmed and tilled agricultural fields, which were surveyed with the aid of 10 X 42 binoculars.

The reconnaissance survey focused on documenting existing biological conditions through verifying and confirming land cover types, wildlife habitats, vegetation communities, and jurisdictional areas. Rincon biologists documented plant and animal species present within the study area and vicinity, evaluated the condition of plant and animal habitats present on site, and assessed the study area for the potential to support special-status species and other sensitive biological resources. Results of the survey were used to support the evaluation of Project impacts on existing biological resources.

3 Existing Conditions

3.1 Physical Characteristics

The San Joaquin Valley comprises the southern two-thirds of the Central Valley of California. It is situated between the Sierra Nevada Mountains to the east, the Diablo and Temblor Ranges (Coast Ranges) to the west, and the Tehachapi Mountains to the south. The San Joaquin Valley occupies a trough created by tectonic forces related to the collision of the Pacific and North American Plates. Topography within the study area is generally flat, with elevations ranging from 340-394 feet (104-120 meters) above mean sea level (msl).

The climate in this region is characterized by very long, dry, hot summers and mild winters. The average high temperature during summer months (June through September) is 94 °F and the average low temperature is 63 °F. The average high temperature during the winter months (December through March) is 68 °F and the average low temperature is 43 °F. Average annual precipitation is only 5.39 inches, with the majority of rainfall occurring during December through March (Western Regional Climate Center 2016).

The study area is bounded by unpaved dirt roads to the north and west. Old River Road runs north to south along the eastern boundary of the Project site. Copus Road runs along the southern boundary of the Project site and northern boundary of the gen-tie corridor. The PG&E Lakeview substation lies directly east of the eastern end of the gen-tie corridor. The study area consists of previously developed agricultural land, as well as the Grapevine Energy LLC Bordeaux Facility. Surrounding land consists of actively farmed and tilled agricultural fields, vineyards, and orchards.

Watershed and Drainages

The study area is located in the Tulare Basin, which drains approximately 16,400 square miles (US EPA 2007). The lowland areas of Tulare Basin make up the southern half of the San Joaquin Valley. Prior to diversion of water for irrigation, water from the Tulare Basin watershed would flow into the San Joaquin River during high flows and flood events. The Kings, Kaweah, Tule and Kern Rivers are the four main drainages in the basin that historically terminated in Tulare Lake. Diversion of waters through a system of dams, canals, and water detention centers prevents most outflow from these rivers from reaching their natural terminus. The study area is located in the Middle Kern-Upper Tehachapi watershed (Hydrologic Unit Code [HUC] 18030003), and the Pleitito Creek-Frontal Kern Lakebed sub-watershed (HUC 180300031202) (US EPA 2020a). The study area is located approximately 2 miles north of the California Aqueduct and approximately 2 miles south of the New Rim Ditch irrigation canal. There are no creeks or drainages within the study area, and there is no connectivity onsite with any waterways. Three agricultural basins were observed in the study area during the reconnaissance survey (Figure 4), which could fall under RWQCB jurisdiction. These potentially jurisdictional water features within the study area are described in Section 4.3.

Soils

The soils in the San Joaquin Valley formed predominantly on alluvial fans and terraces, with parent material derived from granitic and sedimentary rock from the Coast Ranges to the west, and the Sierra Nevada Mountains to the east. According to the USDA NRCS Web Soil Survey (USDA NRCS

2020a), there is just one soil map unit, Calflax loam, 0 to 1 percent slopes, that underlies the entire study area. This soil map unit is described in detail below.

Calflax Loam, 0 to 1 Percent Slopes

Calflax loam, 0 to 1 percent slopes, is derived from alluvium and is found at elevations of 290 to 490 feet above msl. Available water capacity is moderate (about 8.7 inches) and the frequency of flooding is rare to none. The depth to the water table is 80 inches and the soil is classified as well-drained, with negligible run-off (USDA NRCS 2020a). Calflax loam is not classified as a hydric soil (USDA NRCS 2020b).

3.2 Vegetation and Other Land Cover

Vegetation community characterizations for this analysis were based on the classification systems presented in *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) but have been modified slightly to most accurately reflect existing site conditions. *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) is still used for reference and historical perspective, though its classifications are no longer supported by the State of California and have been superseded by Sawyer et al 2009. Plant species nomenclature and taxonomy used for this BRA follow the treatments within the second edition of *The Jepson Manual* (Baldwin et al. 2012). A complete list of all plant species observed during the field reconnaissance survey can be found in Appendix B.

Vegetation types in the San Joaquin Valley have been significantly modified and disturbed by anthropogenic activity. The region once consisted of a diverse assemblage of perennial bunchgrass ecosystems that included a variety of vegetation communities and mosaic of habitats including prairies, oak-grass savannas, desert grasslands, riparian woodlands, freshwater marshes, alkali sink, and vernal pools. Extensive agricultural and urban/suburban development during the 19th and 20th centuries has resulted in substantial modification to virtually all of the Central Valley's habitats. Grasslands in the region are now dominated by introduced non-native grasses and most wetlands and lakes have been drained to support the extensive irrigation infrastructure of the Valley. In general, agricultural development, urban expansion, and changes to the hydrologic regimes have resulted in a loss of the majority of natural habitats and native vegetation communities (Sawyer et al. 2009).

The study area consists primarily of heavily disturbed agricultural fields and no intact native vegetation communities are present. Three land cover types exist within the study area and surrounding vicinity: Agriculture, Ruderal and Developed (Figure 3).

Agriculture

Agricultural fields comprise approximately 95% of the study area. This land cover type is not naturally occurring and is not described in either the Holland (1986) or Sawyer et al. (2009) classification systems. This land cover type within the study area includes actively tilled and commercially farmed fields where crops such as alfalfa (*Medicago sativa*) are grown.

Ruderal

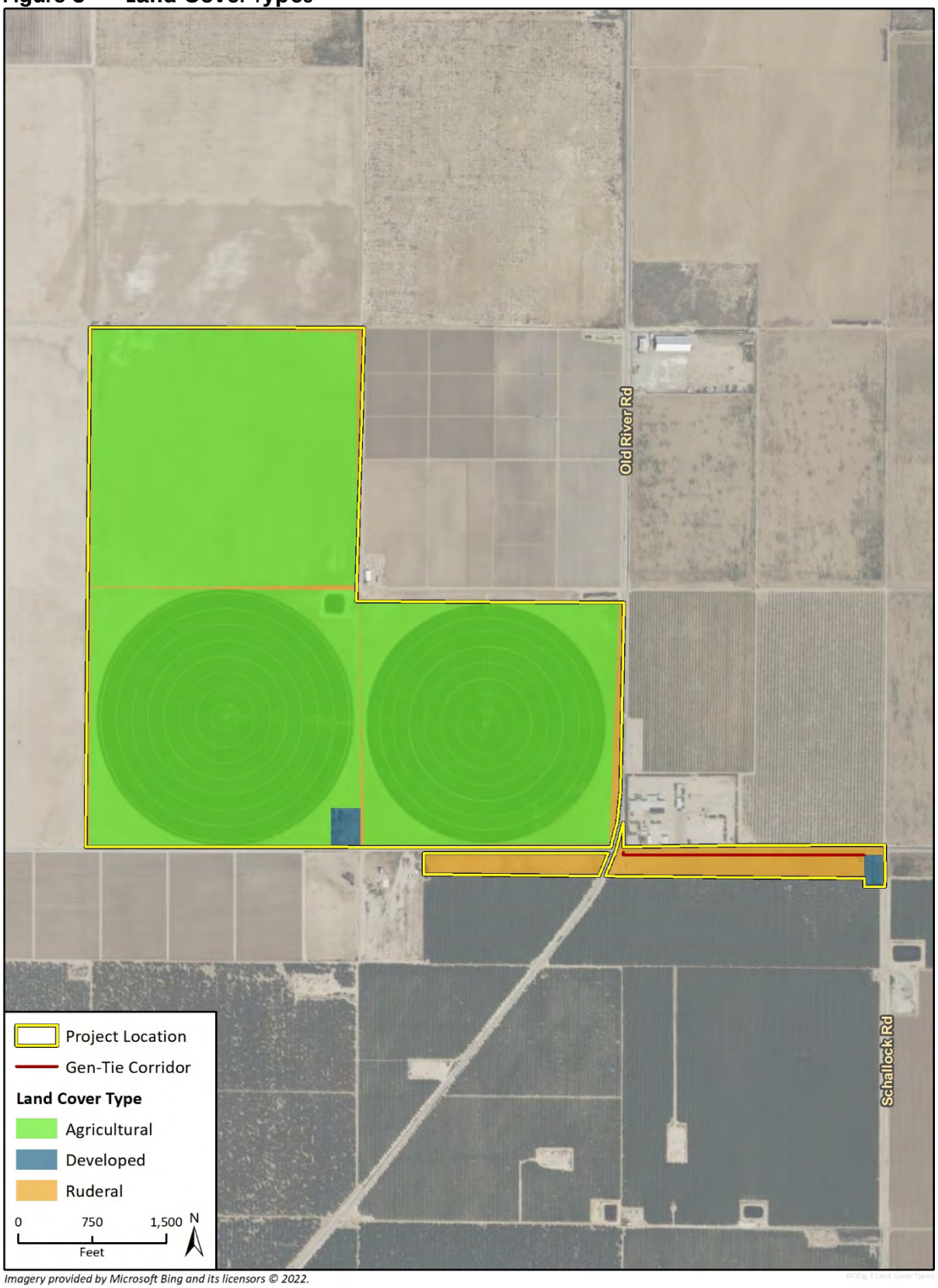
Habitats that have been heavily disturbed or altered such that natural vegetation has largely been removed are considered ruderal areas. These sites do not correspond well with either the Holland

(1986) or Sawyer et al. (2009) classification systems. Ruderal land cover exists throughout the study area, primarily along roadsides and between agricultural fields. Plant species observed within these areas during the field survey consist primarily of weedy non-native species, including: Bermuda grass (*Cynodon dactylon*), Russian thistle (*Salsola tragus*), field bindweed (*Convolvulus arvensis*), and tamarisk (*Tamarix ramosissima*). Several disturbance-tolerant native plant species were observed in this land cover type, including prostrate pigweed (*Amaranthus blitoides*), horseweed (*Erigeron canadensis*), and seaside heliotrope (*Heliotropium curassavicum*).

Developed

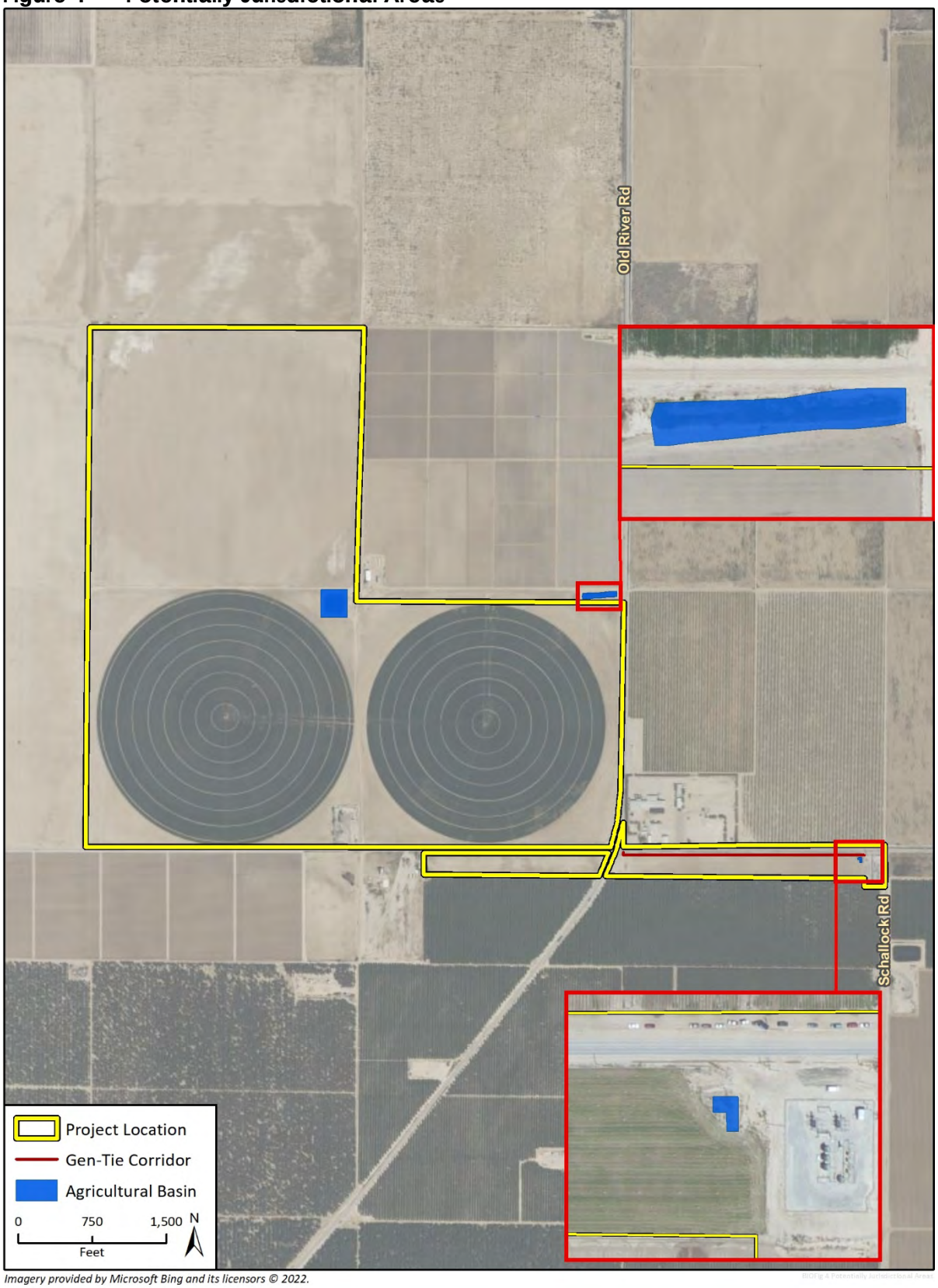
This land cover type is not naturally occurring and is not described in either the Holland (1986) or Sawyer et al. (2009) classification systems. Developed land consists of areas that have been modified such that most or all native vegetation has been removed and only small areas of landscaped vegetation are present. Developed portions of the study area include paved and dirt roads, storage areas for agricultural equipment, and a small energy facility operated by Grapevine Energy LLC, located just north of Copus Road. The PG&E Lakeview substation lies just east of the study area, adjacent to the gen-tie corridor.

Figure 3 Land Cover Types



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Figure 4 Potentially Jurisdictional Areas



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3.3 General Wildlife

The study area and the surrounding vicinity consist predominantly of disturbed agricultural lands. Due to the disturbed nature of the site, wildlife diversity and abundance within the study area are generally low. Bird species which are typically found in open grassland and agricultural habitats were observed during the field reconnaissance survey, including: red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), Say's phoebe (*Sayornis saya*), killdeer (*Charadrius vociferus*), and great-tailed grackle (*Quiscalus mexicanus*). Bird species more commonly associated with developed areas were also detected including common crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), and mourning dove (*Zenaida macroura*). A ferruginous hawk (*Buteo regalis*, CDFW Watch List [WL]), was observed flying over a tilled field near the center of the study area. A loggerhead shrike (*Lanius ludovicianus*, CDFW SSC), was observed foraging in the northwestern corner of the study area. A coyote (*Canis latrans*) was the only mammal species observed during the field survey, but many California ground squirrel (*Otospermophilus beecheyi*) burrows were present throughout the study area. A complete list of all animal species observed during the field reconnaissance survey can be found in Appendix B.

4 Sensitive Biological Resources

Local, state, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential presence to be conducted on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed within the study area and evaluates the potential for the study area to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the survey area, previous reports for the study area, and the results of reconnaissance-level site visit. The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Protocol surveys (if conducted) did not detect species.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the ESA; those listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the CESA or NPPA; those recognized as Fully Protected, SSC, or WL Species by the CDFW; raptors and nesting birds as protected by the CFGC; and plants ranked as California Rare Plant Rank (CRPR) 1 and 2, per the following definitions:

- **Rank 1A** = Plants presumed extinct in California
- **Rank 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- **Rank 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened)
- **Rank 1B.3** = Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened or no current threats known)
- **Rank 2** = Rare, threatened or endangered in California, but more common elsewhere

CRPR 1B and 2 plant species are typically regarded as rare, threatened, or endangered under the CEQA by lead CEQA agencies and were considered as such in this document. CRPR 3 and 4 plant species are typically not considered for analysis under CEQA except where they are designated as rare or otherwise protected by local governments or where cumulative impacts could result in population–level effects.

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in CNDDB. However, the Sensitive Natural Communities List in the CNDDB is not currently maintained and no new information has been added in recent years. CDFW is working to classify and rank vegetation statewide according to state standards that comply with the National Vegetation Classification System, consistent with the approach used in the Manual of California Vegetation. Currently CDFW publishes the California Natural Community List online (CDFW 2020e). Vegetation rarity ranking is based on a rank calculator developed by NatureServe. According to the CDFW Vegetation Program, alliances with State ranks of S1-S3, as well as certain additional associations specifically noted as sensitive in the List, are considered to be imperiled, and thus, potentially of special concern.

4.1 Special-status Species

Based on the results of the CNDDB, CNPS Online Inventory of Rare and Endangered Plants of California, and USFWS IPaC queries, as well as the literature review and reconnaissance survey, 18 special-status plant species and 32 special-status wildlife species were evaluated for their potential to occur within the study area (Appendix C).

Special-status Plant Species

Eighteen special-status plant species were evaluated for their potential to occur within the study area. Of the eighteen species evaluated, only one has potential to occur on site based on the presence of potentially suitable habitat: hispid salty bird's beak (*Chloropyron molle* ssp. *hispidum*). The remaining 17 species were excluded based on the absence of habitat, lack of suitable soils, and historical disturbance experienced in the study area (see Appendix C for a species-by-species evaluation).

Hispid Salty Bird's Beak

Hispid salty bird's beak is designated as CRPR 1B.1, meaning that it is rare or endangered in California and elsewhere, and seriously endangered in California (over 80% of occurrences threatened or have a high degree and immediacy of threat). The species occurs in alkaline soils in meadows and seeps, playas, or valley and foothill grasslands at elevations of 1-155 meters above msl. The plant is hemiparasitic and blooms from June through September.

One occurrence of the species was recorded by CNDDB within 5 miles of the study area in 2010. Due to intensive agricultural use, very limited suitable habitat for the species is present, but there is low potential for the species to occur within an agricultural basin near the center of the study area.

Special-status Wildlife Species

Rincon evaluated thirty-two special-status wildlife species for their potential to occur within the study area or adjacent habitats (Appendix C). Of the thirty-two species evaluated, eight have

potential to occur within the study area. Five of these species have low potential to occur, one has moderate potential to occur, and two were observed within the study area during the field reconnaissance survey and are therefore present. Table 1 provides a list of all special-status wildlife species with potential to occur within the study area, as well as their state and/or federal status.

Table 1 Wildlife Species with Potential to Occur within the Study Area

Common Name	Scientific Name	Status	Potential to Occur
California glossy snake	*Arizona elegans occidentalis*	SSC	Low Potential
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	SSC	Low Potential
Tricolored blackbird	*Agelaius tricolor*	ST	Low Potential
Swainson's hawk	*Buteo swainsoni*	ST	Low Potential
Burrowing owl	*Athene cunicularia*	SSC	Moderate Potential
Ferruginous hawk	*Buteo regalis*	WL	Present (non-nesting)
Loggerhead shrike	*Lanius ludovicianus*	SSC	Present (foraging)
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	Low Potential

FE = Federally Endangered FT = Federally Threatened SE = State Endangered ST = State Threatened
SSC = CDFW Species of Special Concern FP = State Fully Protected WL = State Watch List

The remaining twenty-four species are not expected to occur in the study area or immediate vicinity based on the absence of riparian, grassland, woodland, scrub, or other suitable natural habitats or vegetation communities, and/or because the range of the species does not overlap with the study area. Those special-status wildlife species that have potential to occur are discussed in further detail below.

California Glossy Snake

California glossy snake is a CDFW SSC found in a range of scrub and grassland habitats, often with loose or sandy soils. The species is nocturnal and hides underground beneath rocks during the daytime. California glossy snake are typically active from late February through November and are most active in May. Prey species include small lizards, snakes, birds, and small mammals. Females typically lay 5 to 12 eggs during June and July, which typically hatch in late summer and early fall (Nafis 2000-2020).

There are two historical occurrences (1932 and 1946) of California glossy snake recorded in the CNDDB within 5 miles of the study area. A very limited amount of suitable sandy soil habitat exists around the margins of the study area, though the lack of scrub or grassland habitat or rocks within the area make the presence of this species unlikely. California glossy snake has a low potential to occur within the study area.

San Joaquin Coachwhip

San Joaquin Coachwhip is a CDFW SSC found in valley grassland and saltbush scrub in the San Joaquin Valley in areas with little or no tree cover. This species requires mammal burrows for refuge and oviposition sites but is active during the daytime and able to tolerate high temperatures (Nafis 2000-2020). Its diet includes small mammals, birds, eggs, other reptiles, and carrion. Breeding occurs in May and eggs are laid in early summer (Stebbins 2003).

There are currently no CNDDB records for San Joaquin coachwhip within 5 miles of the study area. However, the site is within this species' known range and there is a very limited amount of suitable burrow habitat along the margins of the Project site. Therefore, San Joaquin coachwhip has a low potential to occur within the study area.

Tricolored Blackbird

Tricolored blackbird is a state threatened species. Tricolored blackbird historically nested in large colonies in wetlands with cattails (*Typha* sp.*)*, bulrushes (*Bolboschoenus* spp., *Schoenoplectiella* spp.), and willows (*Salix* spp.) throughout the central valley. As wetlands have been developed and converted for agriculture, the species has begun to utilize agricultural fields for nesting. Foraging habitats included cultivated fields, feedlots associated with dairy farms, and wetlands. This species now nests almost exclusively in triticale fields, especially those with invasive mustard *(Brassica* spp., *Hirschfeldia incana*) or mallow plants (*Malva* spp.). Females select the nesting site within a male's territory, typically close to freshwater with plenty of concealing vegetation. Females build nests in vegetation from just above ground level up to about eight feet above ground level (Cornell Lab of Ornithology 2020).

There is one occurrence of tricolored blackbird documented by the CNDDB within 5 miles of the study area. There is limited habitat for the species within the study area, but a stand of cattails within an agricultural basin near the center of the study area could provide marginal foraging and nesting habitat for the species. Therefore, tricolored blackbird has a low potential to occur within the study area.

Swainson's Hawk

Swainson's hawk is listed as a state threatened species. The historical breeding range of Swainson's hawk in California included the Great Basin, Sacramento and San Joaquin Basins, the coast from Marin County to San Diego County, and scattered sites in the Mojave and Colorado Deserts (England et al. 1997). The species continues to breed across its entire historical range, but in significantly lower numbers. In the Central Valley, much of the native habitat has been converted to agricultural and urban uses, thereby limiting nesting and foraging opportunities for Swainson's hawk. This species is often found nesting in trees associated with scattered rural residences, particularly in relation to grasslands or dry-land grain fields. Throughout its range the species nest almost exclusively in trees, typically on the edges of woodlands adjacent to grass or shrubland habitat (England et al. 1997). Prey species include squirrels, mice, voles, rabbits, and insects. Nests are typically constructed in solitary trees or small groves of trees near streams (Cornell Lab of Ornithology 2020).

The CNDDB does not contain any records of Swainson's hawk nesting within 10 miles of the study area, and no Swainson's hawk or raptor nests were observed during surveys. Occurrences of the species have been documented by ebird at Buena Vista Lake (located approximately 9.5 miles northwest of the study area) during the breeding season, but no nests have been documented at this location in recent years. No trees are present within the Project footprint. Almond orchards to the south of Copus Road and ornamental trees on properties to the east and south provide marginal nesting habitat for the species; however, no raptor nests are currently present in these trees. Swainson's hawk has a low potential to nest within 0.5 miles of the study area.

Burrowing Owl

burrowing owl is a CDFW SSC that occupies open, treeless areas within grassland, low density scrub, and desert biomes. This species generally inhabits gently sloping areas, characterized by low, sparse vegetation, and is often associated with high densities of burrowing mammals (Cornell Lab of Ornithology 2020). Burrowing owl often uses relatively disturbed areas such as agricultural fields, golf courses, cemeteries, and vacant urban lots in addition to natural breeding habitats. Nests are most often in fossorial animal burrows, such as California ground squirrel or American badger (*Taxidea taxus*), but atypical nests such as culverts or rubble piles may also be used. Nest sites are typically selected in an area with a high density of burrows (Cornell Lab of Ornithology 2020).

There are four burrowing owl occurrences recorded by the CNDDB within 5 miles of the study area. Active agricultural fields do not provide suitable habitat for this species, but ruderal areas and berms along fence-lines and the margins of agricultural fields where ground squirrel burrows are present provide marginal breeding habitat. An intensive survey of suitable habitat on the Project site was conducted during the reconnaissance surveys, and no burrowing owl or their signs were observed. However, there is a moderate potential for burrowing owl to forage or nest within suitable habitat in the study area and within 500 feet of the study area.

Ferruginous Hawk

Ferruginous hawk is a CDFW WL species that occurs in open country within grasslands, sagebrush (*Artemisia* spp.), saltbush (*Atriplex* spp.)-greasewood (*Adenostoma fasciculatum*) shrublands, and edges of pinyon (*Pinus* spp.)- juniper (*Juniperus* spp.) forests at low to moderate elevations. The breeding range for the species is northeast of California, and breeding habitat includes cliffs, outcrops, and tree groves. Wintering habitat within California includes grasslands or deserts with abundant rabbits, pocket gophers (*Thomomys* spp., *Pappogeomys* spp., and *Geomys* spp.), or prairie dog (*Cynomys* spp.). Diet includes rabbits, hares, ground squirrels, prairie dogs, and pocket gophers. West of the Rockies, their diet consists primarily of jackrabbits and cottontail rabbits.

There are no occurrences of ferruginous hawk documented by the CNDDB within 5 miles of the study area. One individual was observed flying over the center of the study area during the field reconnaissance survey, but the region is outside of the breeding range for the species. Agricultural fields within the study area provide marginal winter foraging habitat. Ferruginous hawk is present during the winter months within the study area but is not expected to nest within the vicinity of the study area.

Loggerhead Shrike

Loggerhead shrike is a CDFW SSC that inhabits open county with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. The species can be found in agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, and prairies, and is frequently seen along mowed roadsides with access to fence lines and utility poles (Cornell Lab or Ornithology 2020). Diet includes insects and other arthropods, amphibians, reptiles, small mammals and birds. Loggerhead shrikes often build their nests in thorny vegetation, including in brush piles or tumbleweeds. Eggs are laid from March to May in California, and young become independent in July or August.

One loggerhead shrike was observed foraging within the northwestern portion of the study area during the field reconnaissance survey, and the species is considered present as a forager in the study area. The margins of agricultural fields, roadsides, and utility pole lines within the study area

provide suitable foraging habitat for the species. Almond orchards to the south of the study area could provide suitable nesting habitat for the species. Russian thistle and other shrubs along the perimeter of the study area and within the agricultural basin in the northeast corner of the study area could provide marginally suitable nesting habitat for the species.

San Joaquin Kit Fox

San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally endangered and state threatened species. San Joaquin kit fox is endemic to California west of the Sierra Nevada Mountains. This species occurs in the Central Valley generally from the Sacramento area south to the southern end of the San Joaquin Valley, in the Carrizo Plain, the Panoche Valley, and from northern San Luis Obispo County north through the Salinas Valley. Individuals are about the size of a house cat, weighing 4-7 pounds and are approximately 30 inches in length. Diet consists primarily of kangaroo rats (*Dipodomys* spp.) and other small mammals, occasionally including black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel . San Joaquin kit fox will also eat insects, reptiles, small birds, bird eggs, and vegetation. Predators include coyotes, large raptors, bobcat (*Lynx rufus*), red fox (*Vulpes vulpes*), and feral dogs (*Canis lupus familiaris*). San Joaquin kit fox are most commonly found in gently sloping to relatively flat terrain vegetated with grasslands or grassy open stages with scattered shrubby vegetation. They may occur on a limited basis in areas under less intense agricultural production, such as dry-land grain farming and orchards, and they are known to occur in urban areas (CSU Stanislaus 2020). The species requires loose-textured sandy soils for burrowing, and breeding can occur from December to March. Pups are born within dens after a 48- to 52-day gestation period (USFWS 2020d).

Four occurrences of San Joaquin kit fox are documented by the CNDDB within 5 miles of the study area. However, three of these occurrences were documented in 1975 and one was documented in 1991. During the field reconnaissance survey, several burrows were detected within the study area that were large enough to be utilized by San Joaquin kit fox (greater than 8 inches in diameter). None of these burrows showed any sign (tracks, scat, prey refuse) of San Joaquin kit fox occupation. The intensive agricultural activities onsite, the lack of suitable habitat for prey species, and the presence of coyotes, substantially reduce the habitat value, and the potential for San Joaquin kit fox to occur within the study area is considered low. Were San Joaquin kit fox to occur within the study area, it is likely that they would only use the site for satellite denning during dispersal, and not for breeding.

Other Protected Species

Nesting Birds

Non-game migratory birds protected under the MBTA and the CFGC Section 3503, such as native avian species common to grasslands, agricultural, developed, and ruderal areas, have the potential to breed and forage throughout the study area. Nesting by a variety of common birds protected by the MBTA and CFGC Section 3503 could occur in virtually any location throughout the study area on the ground surface or within native or non-native vegetation.

4.2 Sensitive Plant Communities and Critical Habitats

Based on the CNDDB query, there are four sensitive plant communities known to occur within the nine USGS quads surrounding the study area. These include Valley Sacaton Grassland, Valley Sink

Scrub, Valley Saltbush Scrub, and Great Valley Mesquite Scrub. None of these communities, nor other sensitive plant communities, occur within the study area.

There is no designated Critical Habitat located within the study area (USFWS 2020b).

4.3 Jurisdictional Waters and Wetlands

There are three agricultural basins within the study area (Figure 4). None of these features are considered navigable waters, nor are they connected to any navigable waters. The USACE has issued an Approved Jurisdictional Determination for the study area (Appendix D), confirming that none of the agricultural basins are considered Waters of the United States, and therefore would not require a USACE permit to fill. These features were excavated for agricultural purposes, have no connectivity with any other waterways, and are also not expected to fall under CDFW jurisdiction. The Central Valley RWQCB has confirmed via letter (Appendix E) that the three agricultural basins located within the Project site are either wetlands that are not considered Waters of the State or non-wetland Waters of the State that are excluded from the permitting procedures. Based on the issuance by the RWQCB, it is not anticipated that a permit will be required for activities, including fill, within the basins.

Unnamed Agricultural Basin (southeast corner of study area)

This unnamed basin is located in the southeast corner of the study area, just west of the PG&E Lakeview Substation. The approximate center of the feature is located at GPS coordinates 35.094395, -119.101555 (WGS 84). The NWI classifies this feature as PEM1Cx (Palustrine [P], Emergent [EM], Persistent [1], Seasonally Flooded [C], and Excavated [x]). There was approximately one foot of standing water in the basin at the time of the field reconnaissance survey. The feature has no visible bank or bed and appears to be an excavated agricultural basin, filled by a water pipe. No native riparian or wetland vegetation was observed, and vegetation surrounding the basin consisted primarily of invasive and ruderal plant species, including Russian thistle, prostrate pigweed and horseweed. Due to the anthropogenic nature of the basin and the lack of native riparian vegetation surrounding it, it would be better classified as an agricultural basin than a freshwater emergent wetland. As noted above, the USACE and RWQCB have issued documentation that permits would not be required for activities in the basin (Appendix D and E).

Unnamed Agricultural Basin (near center of study area)

This unnamed agricultural basin is located near the center of the study area and was excavated for irrigation purposes. The approximate center of the feature is located at GPS coordinates 35.101338, -119.119473 (WGS 84). There are human-made berms surrounding the basin and a metal drain located at its center. There was no water in the basin at the time of the field reconnaissance visit, but a stand of cattails exists in the eastern portion of the basin. However, a review of arial imagery indicates emergent vegetation is regularly removed due to agricultural maintenance or lack of surface water. This cattail stand may provide habitat for species that forage and breed in wetlands, such as tricolored blackbird, but it is not associated with any lake or streambed and CDFW is therefore not expected to assert jurisdiction. As noted above, the USACE and RWQCB have issued documentation that permits would not be required for activities in the basin (Appendix D and E).

Unnamed Agricultural Basin (northeast corner of study area)

This unnamed basin, likely excavated for agricultural purposes, exists in the northeast corner of the study area. The approximate center of the feature is located at GPS coordinates 35.101661, -119.110481 (WGS 84). There was no water in the depression at the time of the site reconnaissance visit, and there is no visible bank or bed. The basin contains more vegetation than the surrounding agricultural fields, but no native riparian species were observed. Plant species within the basin consist of primarily invasive and ruderal species, such as tamarisk and jimsonweed (*Datura wrightii*). As noted above, the USACE and RWQCB have issued documentation that permits would not be required for activities in the basin (Appendix D and E).

4.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network. The California Essential Habitat Connectivity Project commissioned by the California Department of Transportation (Caltrans) and CDFW; identifies "Natural Landscape Blocks" which support native biodiversity and the "Essential Connectivity Areas" which link them (Spencer et al. 2010).

Wildlife movement corridors can be both large and small in scale. Fallow agricultural fields and un-tilled margins of agricultural areas provide local-scale opportunities for wildlife movement throughout the study area. Existing roads within the study area also act as corridors for wildlife movement, particularly for relatively disturbance-tolerant species such as coyote and raccoon (*Procyon lotor*). There are no Natural Landscape Blocks or Essential Connectivity Areas mapped within the study area (Spencer et al. 2010).

4.5 Resources Protected by Local Policies and Ordinances

The Project is located in unincorporated Kern County. Project activities are subject to the Kern County General Plan and Municipal Code. Special-status species and biological resources are protected under Provisions 1.10.5 and 1.10.10 of the Kern County General Plan. Additionally, Policy 32 protects riparian areas under the jurisdiction of CDFW and is intended to enhance drainages and aid in flood control. The Kern County Municipal Code Chapter 19.73 protects native trees with a trunk diameter greater than eight inches.

4.6 Habitat Conservation Plans

The study area falls within the proposed Kern County Valley Floor Habitat Conservation Plan (VFHCP). The USFWS issued a notice in the Federal register that Pursuant to the National Environmental Policy Act (NEPA), the public is advised that we intend to gather information necessary to prepare, in coordination with CDFW, California Energy Commission, the California Department of Conservation Division of Oil, Gas and Geothermal Resources, and the County of Kern,

a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) on the VFHCP. The VFHCP is being prepared under Section 10(a)(1)(B) of the FESA of 1973, as amended. The County of Kern intends to apply for a 30-year incidental take permit from the Service. The permit is needed to authorize the incidental take of threatened and endangered species that could occur as a result of public and private development. However, to date, the EIS has not been completed, the plan has yet to be implemented and implementation of the plan is not expected to occur in the foreseeable future. Currently there are no active HCPs in effect within the project area.

5 Impact Analysis and Mitigation Measures

This section discusses the potential impacts and effects to biological resources that may occur from implementation of the proposed Project and recommends mitigation measures that would reduce those impacts, where applicable.

Impact Statement	Proposed Project's Level of Significance	Applicable Mitigation Measures
Biological Resources		
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.	Less than significant impact with mitigation incorporated	BIO-1, BIO-2, BIO-3, BIO-4
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.	Less than significant	No mitigation is required
Have a substantial adverse impact 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 US Fish and Wildlife Service.	No impact	No mitigation is required
Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites.	Less than significant	No mitigation is required
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No conflict	No mitigation is required
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.	No conflict	No mitigation is required

5.1 Special-Status Species

Threshold 1: 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.

IMPACT BIO-1 IMPLEMENTATION OF THE JASMINE SOLAR PROJECT WOULD HAVE A SUBSTANTIAL ADVERSE EFFECT ON SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Special-status Plants Species

One special-status plant species has the potential to occur within the study area based on known ranges, habitat preferences, species occurrence records in the vicinity of the study area, and presence of suitable habitat.

Hispid Salty Bird's Beak

Hispid salty bird's beak has a low potential to occur within alkaline soil associated with the1.68-acre agricultural basin near the center of the study area. If present, direct impacts to the species may include loss of plants or loss of habitat due to grading and/or removal of the existing agricultural basin. Off-site impacts could include fugitive dust and human intrusion into sensitive areas. Because this species is not state or federally listed these impacts would only be considered significant if it would jeopardize the regional population. Because of the small size of suitable habitat and isolation from natural vegetation communities, the removal of a small number of individuals, if present, would not represent an impact to the regional population. Therefore, impacts to hispid salty bird's beak would be less than significant.

Special-status Wildlife Species

Eight special-status wildlife species have potential to occur within the study area based upon observations made during the field reconnaissance survey, known ranges and habitat preferences, species occurrence records within the vicinity of the study area, and presence of suitable habitat. Five of these animal species have a low potential to occur: California glossy snake, San Joaquin coachwhip, tricolored blackbird, San Joaquin kit fox, and Swainson's hawk. One of these species, the burrowing owl, has a moderate potential to occur within the study area. Two species were observed within the study area during the field reconnaissance survey: ferruginous hawk (overhead flight) and loggerhead shrike (foraging). Nesting special-status bird species and/or nesting birds protected under the MBTA and CFGC have potential to occur throughout the study area during the nesting season (February 1 to September 15).

Potential Project impacts to each of the special-status wildlife species with potential to occur within the study area, as well mitigation measures for reducing those impacts to less than significant, are described below.

Special-Status Reptiles

Special-status reptiles with potential to occur within the study area include California glossy snake and San Joaquin coachwhip, both CDFW SSC. Impacts to these non-listed species would be considered significant under CEQA if they would threaten the continued existence of the population. Due to the disturbance of habitat from intensive agricultural activities, California glossy snake and San Joaquin coachwhip have only a low potential to occur within ruderal areas that contain non-native vegetation and ground squirrel burrows along the periphery of the study area. It is unlikely that the continued existence of the population would be threatened due to the disturbance of a small area of marginally suitable habitat within the study area. Therefore, Project impacts to special-status reptile species would be less than significant.

Tricolored Blackbird

Habitat with a small amount of the constituent features required for tricolored blackbird nesting exists within cattails in the unnamed agricultural basin near the center of the study area; however, this is too small of a patch of cattail to function as a likely location to contain a nesting colony of tricolored blackbirds. Mitigation Measures BIO-1 and BIO-4 include recommendations to reduce impacts to nesting birds and avoid violations of the MBTA and CFGC.

Swainson's Hawk

Marginally suitable nesting habitat for the Swainson's hawk and other raptors exists within 0.5 miles of the study area in planted palm trees, as well as citrus and almond orchards. Construction activity initiated within 0.75 mile of an active Swainson's hawk nest could significantly disturb the species, thereby resulting in nest abandonment. Impacts that result in incidental take of nesting Swainson's hawk within 0.5 mile of the Project would be considered significant under CEQA. Mitigation Measures BIO-1 and BIO-4 include recommendations to reduce impacts to Swainson's hawk and other nesting raptors.

Burrowing Owl

Currently, the Project site is not occupied by burrowing owl, and no loss of burrowing owl habitat would occur from Project development. No burrowing owl or sign of burrowing owl was detected during the field reconnaissance survey that included 100% pedestrian survey of the study area. Isolated and low-density California ground squirrel colonies in the study area and associated ditches and roadside berms provide suitable breeding habitat, predominantly at the margins of agricultural fields; however, there was no sign indicating owls were currently or historically occupying existing burrows on site. Burrowing owl may utilize the study area for foraging; however, ongoing agricultural uses and low abundance of prey make most of the study area poor-quality foraging habitat. The species is most likely to occur as a transient. The presence of small numbers of California ground squirrel burrows in isolated locations on and adjacent to the site present a moderate potential for burrowing owl to establish a nest onsite in the future. If this were to occur, the Project could directly impact the nest either through ground disturbance activities destroying the nest, or through disruption of normal biological behaviors during construction of the Project resulting in nest failure. Such an impact would be considered significant under CEQA. Mitigation Measures BIO-1 and BIO-3 include recommendations for reducing direct impacts to burrowing owl to a less than significant level.

Ferruginous Hawk

A ferruginous hawk was observed foraging within the study area during the field reconnaissance survey. However, the study area is outside of the breeding range of the species and the site only provides marginal winter foraging habitat. Project activities could result in potential disturbance of foraging behavior during construction and the modification of less than 500 acres of winter foraging habitat; however, most of this habitat could still function as foraging habitat after construction. Due to the highly disturbed nature of the site, the potential loss of a small amount of marginal foraging habitat would be a less than significant impact.

Loggerhead Shrike

Habitat within an almond orchard to the south of the study area, and Russian thistle and other shrubs along the perimeter of the study area and within the agricultural basin in the northeast

corner of the study area could provide marginally suitable nesting habitat for loggerhead shrike. Loggerhead shrike nests, if present in the study area during construction, could experience direct impacts though Project activities including destruction of the nest, or through disruption of normal biological behaviors resulting in nest failure. Direct impacts to non-listed species would not be significant under CEQA but would be a violation of the MBTA and CFGC. Mitigation Measures BIO-1 and BIO-4 include recommendations to reduce impacts to nesting birds and avoid violations of the MBTA and CFGC.

San Joaquin Kit Fox

San Joaquin kit fox has a low potential to occur on-site. Several burrows of sufficient size to accommodate San Joaquin kit fox were detected during site surveys; however, no sign of the species was observed and there was no indication that existing burrows were occupied or incidentally used by the species. Furthermore, the low abundance of prey and the presence of coyote predators makes the site marginal as foraging habitat. The species may occur within the study area irregularly during dispersal. San Joaquin kit fox is a highly mobile species and individuals have large home ranges and travel long distances during foraging and dispersal. As such, there is some low potential for an individual to be present incidentally during construction. Impacts to San Joaquin kit fox, if present during construction, could include injury or mortality of individuals. Injury, mortality, or harassment of even a single individual would be considered significant under CEQA. Mitigation Measures BIO-1 and BIO-2 include recommendations for reducing direct impacts to San Joaquin kit fox to a less than significant level. Impacts to San Joaquin kit fox would also require consultation with USFWS and possible permitting for “take” of a listed species.

Other Protected Species

Nesting Birds

Many bird species protected by the MBTA and CFGC have potential to nest within the study area. Nests of non-special-status bird species, if present in the study area during construction, could experience direct impacts though Project activities including destruction of the nest, or through disruption of normal biological behaviors resulting in nest failure. Direct impacts to non-listed species would not be significant under CEQA but would be a violation of the MBTA and CFGC.. Mitigation Measures BIO-1 and BIO-4 include recommendations to reduce impacts to nesting birds and avoid violations of the MBTA and CFGC.

Mitigation Measures

BIO-1 Worker Environmental Awareness Program (WEAP)

Prior to initiation of construction activities (including staging and mobilization), all personnel associated with Project construction should attend WEAP training, conducted by a qualified biologist, to aid workers in recognizing special-status species, native birds and other biological resources that may occur in the construction area. The specifics of this program should include identification of special-status species with potential to occur at the Project site and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. A fact sheet conveying this information should also be prepared for distribution to all contractors, their employers, and other personnel involved with

construction. All employees should sign a form provided by the trainer indicating they have attended the WEAP and understand the information presented to them.

BIO-2 San Joaquin Kit Fox

A pre-construction clearance survey for San Joaquin kit fox should be conducted not less than 14 days and not more than 30 days prior to the initiation of ground-disturbing activities with the goal of 100% avoidance. The survey areas should include the entire study area and all accessible undeveloped habitat within 200 feet. If potential dens are observed, then game cameras should be deployed to confirm San Joaquin kit fox occupancy or absence. If occupied kit fox burrows are identified within the Project footprint, avoidance buffers shall be established, and no impacts should occur. Eviction of kit fox and impacts to active burrows requires federal and state "take" authorization. Construction activities should adhere to the avoidance and minimization measures outlined in the USFWS 2011 Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance, outlined below:

- Project-related vehicles should observe a 20-mph speed limit in all study areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated study areas should be prohibited.
- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a Project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS should be notified within three days of the discovery.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or Project site.
- No firearms or pets should be allowed on the Project site.
- Use of rodenticides and herbicides in study areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

BIO-3 Burrowing Owl

A preconstruction clearance survey for burrowing owl should be conducted by a qualified biologist no less than 14 days prior to the start of construction activities in accordance with the protocols adopted by the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). If burrowing owl are observed on-site or within 500 feet of the site, the following avoidance measures should be implemented:

- A no-disturbance buffer should be established around occupied burrows and demarcated by the biologist with high visibility material. The buffer size may range from 150 feet to 650 feet depending on the time of year and the level of construction activity (refer to CDFW 2012).

- All construction personnel should be notified as to the existence of the buffer zones and to avoid entering buffer zones during the nesting season. No ground disturbing activities should occur within the buffer until the biologist has confirmed that breeding/nesting is complete and the young have fledged the nest. Encroachment into the buffer should occur only at the discretion of the qualified biologist.
- If construction activities occur within the vicinity of the buffer zone, a qualified biologist should monitor the nest to ensure construction activities will not adversely impact the nesting birds and determine when the burrow is no longer occupied.

BIO-4 Swainson's Hawk, Tricolored Blackbird, and Other Raptors and Nesting Birds

Ground disturbance and vegetation removal activities should be restricted to the non-breeding season (September 16 to January 31) when feasible. If construction activities occur during the nesting bird season (February 1 to September 15), the following mitigation measures are recommended to reduce impacts to Swainson's hawk, other protected raptor species, loggerhead shrike, tricolored blackbird, and other nesting birds protected by the MBTA and CFGC.

- A preconstruction nesting bird survey should be conducted no more than 7 days prior to initiation of ground disturbance and vegetation removal. The survey should be conducted within the study area and include a 150-foot buffer for passerines, 500-foot buffer for tricolored blackbird and other raptors, and 0.5-mile buffer for active Swainson's hawk nests. The survey should be conducted by a biologist familiar with the identification of avian species known to occur in the region and should focus on trees and vegetated areas, including within the small stand of cattail marsh habitat.
- If nests are found, an appropriate avoidance buffer will be determined and demarcated by the biologist with high visibility material. For Swainson's hawk nests, an avoidance buffer of up to 0.5 miles should be established, and for tricolored blackbird colonies an avoidance buffer of up to 100 feet should be established. Nest buffers should be determined by a qualified biologist based on the nest location in relation to the Project activity, the line-of-sight from the nest to the Project activity, and observed behavior at the nest.
- All construction personnel should be notified as to the existence of the buffer zones and to avoid entering buffer zones during the nesting season. No ground disturbing activities should occur within the buffer until the avian biologist has confirmed that breeding/nesting is complete and the young have fledged the nest. Encroachment into the buffer should occur only at the discretion of the qualified biologist.

Significance After Mitigation

Less than significant with mitigation.

5.2 Sensitive Plant Communities

Threshold 3:	Have a substantial adverse impact 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 US Fish and Wildlife Service.

Impact BIO-3 The Project would not result in substantial adverse impacts 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 US Fish and Wildlife Service.

No riparian habitat, sensitive plant communities, or other sensitive natural communities, are present within the study area. Therefore, no impacts to riparian habitat or sensitive natural communities are expected.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

No impact would occur without mitigation.

5.3 Jurisdictional Waters and Wetlands

Threshold 2:	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.

Impact BIO-2 The Project would not result in substantial adverse effects 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.

Three excavated agricultural basins exist within the study area. As noted in Section 4.3, the USACE and RWQCB have issued documentation that permits would not be required for activities in the basins (Appendix D and E).It is unlikely that CDFW will assert jurisdiction over these features, as they are human-made and lack connectivity. Given the disturbed nature of the basins and small amount of marginal habitat, impacts to these features would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impact would be less than significant without mitigation..

5.4 Wildlife Movement

Threshold 4:	Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites.

Impact Bio-4 The Project would not interfere substantially with the movement of any resident or migratory fish or wildlife or established resident or migratory wildlife corridors or impeded the use of wildlife nursery sites. Therefore, impacts to wildlife movement would be less than significant.

There are no Natural Landscape Blocks or Essential Connectivity Areas mapped within the study area. Wildlife movement within the study area and surrounding land has long been disrupted by intensive agriculture, and existing wildlife movement through agricultural areas around the Project would not be substantially altered by project development. The Project is not expected to alter existing regional wildlife movement or interfere with established resident or migratory wildlife corridors. Therefore, impacts to wildlife movement would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impact would be less than significant without mitigation.

5.5 Local Policies and Ordinances

Threshold 5:	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact Bio-5 The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The Kern County General Plan includes open space, conservation, and land use elements designed to protect biological resources that generally do not apply to areas zoned for agriculture (e.g., Policy 28 of 1.10.15 Threatened and Endangered Species specifying that the County will work closely with State and federal agencies to assure that discretionary Projects avoid or minimize impacts to fish, wildlife, and botanical resources). Proposed Project activities are not in conflict with any elements of the General Plan designed to protect biological resources as the site is located in agricultural zoning. No native trees were observed on site or are proposed for removal, and therefore the project does not conflict with County tree protection ordinances. The Project also would not conflict with Kern County Municipal Code. Therefore, no conflict with any local policies or ordinances would occur.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

No impact would occur without mitigation.

5.6 Adopted or Approved Plans

Threshold 6:	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

Impact Bio-6 The Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The study area is not included in any adopted HCP, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plans. Therefore, no additional measures are recommended. While the site is located within the defined plan area limits of the VFHCP, this plan has not been adopted, and its current outcome is uncertain. Therefore, no conflict with any conservation plan would occur.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

No impact would occur without mitigation.

6 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Field Reconnaissance Survey

- Heather Curran, Biologist
- Morgan Craig, Associate Biologist

Appendix A

Site Photographs



Photograph 1. View of the agricultural basin located at the eastern end of the proposed gen-tie corridor, facing west.



Photograph 2. View of the agricultural basin located at the eastern end of the proposed gen-tie corridor, facing east. The PG&E Lakeview Substation is visible in the background, just east of the basin.



Photograph 3. View of the proposed gen-tie corridor, facing northwest. The Maricopa Orchard Company production facility can be seen in the background, just north of the study area.



Photograph 4. The junction of Copus Road and Old River Road, facing east. The gen-tie corridor lies south of Copus Road, while the remainder of the study area lies north of Copus Road.



Photograph 5. View of the proposed gen-tie corridor, facing east. Citrus orchards are located to the north and almond orchards are located to the south of this portion of the study area.



Photograph 6. View across Copus Road of the study area, facing north. The majority of the study area consists of agricultural fields, some of which were being actively tilled during the site survey.



Photograph 7. View of the agricultural basin located near the center of the study area, facing northeast. The cattail stand in the eastern portion of the basin could provide suitable habitat for some wetland species.



Photograph 8. View of the agricultural basin located in the center of the study area, facing southwest. The basin is human-made and surrounded by actively farmed agricultural fields.



Photograph 9. View of the agricultural equipment storage area near the center of the study area, facing northwest.



Photograph 10. View of one of the large burrows located in the berm along the southern edge of the agricultural basin, facing north. The burrow opening is approximately ten inches in diameter.



Photograph 11. View of the agricultural basin located near the northeast corner of the study area, facing west.



Photograph 12. View of a recently tilled agricultural field that is representative of the majority of the study area, facing southwest.



Photograph 13. View of the Grapevine Energy LLC "Bordeaux" Facility located in the southern portion of the study area, facing northwest.



Photograph 14. View of two tanks of corrosion inhibitor being stored in the southern portion of the study area, facing south.

Appendix B

Floral and Faunal Compendium

Plant Species Observed within the Study Area on November 13, 2020

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Citrus sinensis	orange	None	Introduced, Cultivated
Prunus dulcis	almond	None	Introduced, Cultivated
Salix gooddingii	Goodding's willow	None	Native
Washingtonia robusta	Mexican fan palm	None	Introduced
Shrubs			
Nerium oleander	oleander	None	Introduced
Tamarix ramosissima	tamarisk	None	Introduced, Cal-IPC High
Herbs			
Amaranthus blitoides	prostrate pigweed	None	Native
Brassica nigra	black mustard	None	Introduced, Cal-IPC Moderate
Centaurea melitensis	tocalote	None	Introduced, Cal-IPC Moderate
Chenopodium murale	nettle leaf goosefoot	None	Introduced
Convolvulus arvensis	field bindweed	None	Introduced
Cressa truxillensis	spreading alkaliweed	None	Native
Datura wrightii	jimsonweed	None	Native
Erigeron bonariensis	flax-leaved horseweed	None	Introduced
Erigeron canadensis	horseweed	None	Native
Helianthus annuus	hairy-leaved sunflower	None	Native
Heliotropium curassavicum	seaside heliotrope	None	Native
Malva neglecta	dwarf mallow	None	Introduced
Malva parviflora	cheeseweed mallow	None	Introduced
Medicago sativa	alfafa	None	Introduced, Cultivated
Rumex crispus.	curly dock	None	Introduced, Cal-IPC Limited
Salsola ryanii	Ryan's Russian thistle	None	Introduced
Salsola tragus	Russian thistle	None	Introduced, Cal-IPC Limited
Suaeda nigra	bush seepweed	None	Native
Typha sp.	cattail	None	Introduced
Grasses			
Avena sp.	wild oat	None	Introduced, Cal-IPC Moderate
Bromus sp.	brome	None	Introduced, Cal-IPC Low to High
Cynodon dactylon	Bermuda grass	None	Introduced, Cal-IPC Moderate
Paspalum dilatatum	dallis grass	None	Introduced

Cal-IPC – California Invasive Plant Council

Wildlife Species Observed Within the Study Area on November 13, 2020

Scientific Name	Common Name	Status	Native or Introduced
Reptiles			
Uta stansburiana	side-blotched lizard	None	Native
Birds			
Ardea alba	great egret	None	Native
Buteo jamaicensis	red-tailed hawk	None	Native
Buteo regalis	ferruginous hawk	WL	Native
Charadrius vociferus	killdeer	None	Native
Cistothorus palustris	marsh wren	None	Native
Columba livia	rock dove	None	Introduced
Corvus brachyrhynchos	American crow	None	Native
Corvus corax	common raven	None	Native
Euphagus cyanocephalus	Brewer's blackbird	None	Native
Falco sparverius	American kestrel	None	Native
Haemorhous mexicanus	house finch	None	Native
Lanius ludovicianus	loggerhead shrike	SSC	Native
Melospiza melodia	song sparrow	None	Native
Mimus polyglottos	northern mockingbird	None	Native
Molothrus ater	brown-headed cowbird	None	Native
Passer domesticus	house sparrow	None	Introduced
Passerculus sandwichensis	savannah sparrow	None	Native
Pooecetes gramineus	vesper sparrow	None	Native
Quiscalus mexicanus	great-tailed grackle	None	Native
Sayornis nigricans	black phoebe	None	Native
Sayornis saya	Say's phoebe	None	Native
Setophaga coronata	yellow-rumped warbler	None	Native
Spizella passerina	chipping sparrow	None	Native
Streptopelia decaocto	Eurasian collared dove	None	Introduced
Zenaida macroura	mourning dove	None	Native
Mammals			
Canis latrans	coyote	None	Native

CDFW: SSC – State Species of Special Concern; WL – State Watch List; FP – State Fully Protected

Appendix C

Special-status Species Potential to Occur Evaluations

Special-status Plant Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Plants and Lichens				
Astragalus hornii var. *hornii* Horn's milk-vetch	None/None GUT1/S1 1B.1	Meadows and seeps, Playas. lake margins, alkaline. 60 - 850 m. annual herb. Blooms May-Oct	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Atriplex cordulata var. *cordulata* heartscale	None/None G3T2/S2 1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy). saline or alkaline. 0 - 560 m. annual herb. Blooms Apr-Oct	Not Expected	One occurrence of the species is recorded by the CNDDB within five miles of the study area, but this record is from 1983 and due to intensive agriculture, no suitable habitat for the species exists within the study area.
Atriplex coronata var. *vallicola* Lost Hills crownscale	None/None G4T3/S3 1B.2	Chenopod scrub, Valley and foothill grassland, Vernal pools. alkaline. 50 - 635 m. annual herb. Blooms Apr-Sep	Not Expected	One occurrence of the species is recorded by the CNDDB within five miles of the study area, but this record is from 1995 and due to intensive agriculture, no suitable habitat for the species exists within the study area.
Atriplex tularensis Bakersfield smallscale	None/SE GX/SX 1A	Chenopod scrub. 90 - 200 m. annual herb. Blooms Jun-Oct	Not Expected	One occurrence of the species is recorded by the CNDDB within five miles of the study area, but this record is from 1992 and due to intensive agriculture, no suitable habitat for the species exists within the study area. The species is assumed to be extirpated in California.
Calochortus striatus alkali mariposa lily	None/None G3/S2S3 1B.2	Chaparral, Chenopod scrub, Mojavean desert scrub, Meadows and seeps. alkaline, mesic. 70 - 1595 m. perennial bulbiferous herb. Blooms Apr-Jun	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Caulanthus lemmonii Lemmon's jewelflower	None/None G3/S3 1B.2	Pinyon and juniper woodland, Valley and foothill grassland. 80 - 1580 m. annual herb. Blooms Feb-May	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Chloropyron molle ssp. *hispidum* hispid salty bird's beak	None/None G2T1/S1 1B.1	Meadows and seeps, Playas, Valley and foothill grassland. alkaline. 1 - 155 m. annual herb (hemiparasitic). Blooms Jun-Sep	Low Potential	One occurrence of the species was recorded by the CNDDB within 5 miles of the study area in 2010. Due to intensive agriculture, very limited suitable habitat for the species is present, but there is low potential for the species to occur within an agricultural basin near the center of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Delphinium recurvatum recurved larkspur	None/None G2?/S2? 1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland. alkaline. 3 - 790 m. perennial herb. Blooms Mar-Jun	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Diplacus pictus calico monkeyflower	None/None G2/S2 1B.2	Broadleafed upland forest, Cismontane woodland. granitic, disturbed areas. 100 - 1430 m. annual herb. Blooms Mar-May	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Eremalche parryi ssp. *kernensis* Kern mallow	FE/None G3G4T3/S3 1B.2	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland. On dry, open sandy to clay soils; often at edge of balds. 70 - 1290 m. annual herb. Blooms Jan (Feb),Mar, Apr, May	Not Expected	One occurrence of the species is recorded by the CNDDB within 5 miles of the study area, but this record is from 1986 and due to intensive agriculture, no suitable habitat for the species exists within the study area.
Eschscholzia lemmonii ssp. *kernensis* Tejon poppy	None/None G5T2/S2 1B.1	Chenopod scrub, Valley and foothill grassland. 160 - 1000 m. annual herb. Blooms (Feb)Mar-May	Not Expected	The study area is outside of the elevation range of this species. No suitable habitat for the species exists within the study area.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None/None G4T2/S2 1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools. 1 - 1220 m. annual herb. Blooms Feb-Jun	Not Expected	The study area is outside of the elevation range of this species. No suitable habitat for the species exists within the study area.
Layia heterotricha pale-yellow layia	None/None G2/S2 1B.1	Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland. alkaline or clay. 300 - 1705 m. annual herb. Blooms Mar-Jun	Not Expected	The study area is outside of the elevation range of the species. No suitable habitat for the species exists within the study area.
Layia leucopappa Comanche Point layia	None/None G1/S1 1B.1	Chenopod scrub, Valley and foothill grassland. 100 - 350 m. annual herb. Blooms (Feb)Mar-Apr	Not Expected	One occurrence of the species is documented by the CNDDB within 5 miles of the study area. However, this record is from 1987 and due to intensive agriculture, suitable habitat for the species no longer exists within the study area.
Navarretia setiloba Piute Mountains navarretia	None/None G2/S2 1B.1	Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland. clay or gravelly loam. 285 - 2100 m. annual herb. Blooms Apr-Jul	Not Expected	The study area is outside of the elevation range of this species. No suitable habitat for the species exists within the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Opuntia basilaris var. *treleasei* Bakersfield cactus	FE/SE G5T1/S1 1B.1	Chenopod scrub, Cismontane woodland, Valley and foothill grassland. sandy or gravelly. 100 - 1450 m. perennial stem succulent. Blooms Apr-May	Not Expected	The study area is within the known range of the species, but due to intensive agriculture, suitable habitat for the species no longer exists.
Puccinellia simplex California alkali grass	None/None G3/S2 1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools. Alkaline, vernally mesic; sinks, flats, and lake margins. 2 - 930 m. annual herb. Blooms Mar-May	Not Expected	The study area is outside of the known range of the species. No suitable habitat for the species exists within the study area.
Ribes menziesii var. *ixoderme* aromatic canyon gooseberry	None/None G4T1/S1 1B.2	Chaparral, Cismontane woodland. 610 - 1160 m. perennial deciduous shrub. Blooms Apr	Not Expected	The study area is outside of the elevation range of this species. No suitable habitat for the species exists within the study area.

Regional Vicinity refers to within a 9-quad search radius of site.

FE = Federally Endangered FT = Federally Threatened

SE = State Endangered ST = State Threatened

CRPR (CNPS California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

CRPR Threat Code Extension:

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

.2=Fairly endangered in California (20-80% occurrences threatened)

Special-status Animal Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Invertebrates				
Bombus crotchii Crotch bumble bee	None/SCE G2/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum*.	Not Expected	One occurrence of this species is documented by the CNDDB within 5 miles of the study area, but the record is from 1954, and due to intensive agriculture and the widespread use of pesticides and herbicides in the area, food plants for the species are not abundant within the study area, and the species is not expected to occur.
Amphibians				
Batrachoseps stebbinsi Tehachapi slender salamander	None/ST G2G3/S2S3	Valley-foothill hardwood-conifer & valley-foothill riparian in the Piute and Tehachapi mountains of Kern County. Prefers wet talus slopes or log-strewn hillsides with a steep, north-facing exposure.	Not Expected	No suitable habitat for the species exists within the study area. There are no occurrences of the species recorded by the CNDDB within 5 miles of the study area.
Ensatina eschscholtzii croceater yellow-blotched salamander	None/None G5T3/S3 WL	Forests and well-shaded canyons, as well as oak woodlands and old chaparral. Needs surface objects, such as logs, boards, and rocks. Also needs old rodent burrows or other underground retreats.	Not Expected	No suitable habitat for the species exists within the study area. There are no occurrences of the species recorded by the CNDDB within 5 miles of the study area.
Spea hammondii western spadefoot	None/None G2G3/S3 SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected	There is no suitable grassland habitat for the species within the vicinity of the study area and there are no occurrences of the species recorded by the CNDDB within 5 miles of the Study area.
Reptiles				
Anniella spp. California legless lizard	None/None G3G4/S3S4 SSC	Contra Costa County south to San Diego, within a variety of open habitats.This element represents California records of Anniella not yet assigned to new species within the Anniella pulchra complex. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	Not Expected	There is very limited suitable habitat for the species within the study area, and there are no CNDDB records of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Arizona elegans occidentalis California glossy snake	None/None G5T2/S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Low Potential	There are two occurrences of the species recorded by the CNDDB within 5 miles of the study area, but these records are from 1932 and 1946 and suitable habitat for the species is very limited due to the disturbed nature of the site.
Emys marmorata western basin turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of basins, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not Expected	No suitable sandy banks or grassy open fields exist within the study area or regional vicinity.
Gambelia sila blunt-nosed leopard lizard	FE/SE G1/S1 FP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	Not Expected	One occurrence of the species is documented by the CNDDB within 5 miles of the study area. However, this record is from 1918 and due to intensive agriculture, suitable habitat for the species no longer exists within the study area.
Masticophis flagellum ruddocki San Joaquin coachwhip	None/None G5T2T3/S2? SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	Low Potential	Grassland and saltbush scrub are not present within the study area, and there are no occurrences of the species documented by the CNDDB within 5 miles of the study area. However, there is low potential for the species to occur along the margins of the study area within mammal burrows.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not Expected	There is very limited suitable habitat for the species within the study area, and the widespread use of pesticides on-site has extremely reduced the potential for abundant insect prey species.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Birds				
Agelaius tricolor tricolored blackbird	None/ST G1G2/S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Low Potential	There is low potential for this species to occur within the cattail marsh in the agricultural basin near the center of the study area. There is one occurrence of the species documented by the CNDDB within 5 miles of the study area.
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate Potential	Five occurrences of the species are documented by the CNDDB within 5 miles of the study area. No active burrows were observed within the study area during the field survey, but there is moderate potential for the species to occur along the margins of the study area.
Buteo regalis Ferruginous hawk	None/None G4/S3S4 WL	Open country, grasslands, sagebrush, edges of pinyon-juniper forests at low to moderate elevations. Nesting habitat includes features such as cliffs, outcrops, and tree groves.	Present (Wintering)	One individual was observed foraging within the study area during the field survey. The species is present in the area during the winter season, but the study area is outside of the breeding range of the species.
Buteo swainsoni Swainson's hawk	None/ST G5/S3	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low Potential	No suitable habitat for the species exists within the study area. Adjacent orchards and ornamental trees within ½ mile of the study area could provide marginally suitable nesting habitat. There are no occurrences of the species recorded by the CNDDB within five miles of the study area.
Charadrius nivosus nivosus western snowy plover	FT/None G3T3/S2S3 SSC	Sandy beaches, salt basin levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Not Expected	No suitable habitat for the species exists within the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected	No suitable habitat for the species exists within the study area.
Dendrocygna bicolor fulvous whistling-duck	None/None G5/S1 SSC	Fresh-water marsh. Tule/cattail marsh.	Not Expected	The study area is outside of the known range for the species and there are no occurrences of the species documented by the CNDDB within 5 miles of the study area.
Haliaeetus leucocephalus bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially basinerosa pine. Roosts communally in winter.	Not Expected	No suitable habitat for the species exists within the study area.
Lanius ludovicianus loggerhead shrike	None/None G4/S4 SSC	Open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. Frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses,	Present	One individual was observed foraging within the study area during the field survey. Some suitable nesting habitat for the species exists within orchards adjacent to the study area, as well as tumbleweeds along the margins of the study area.
Plegadis chihi white-faced ibis	None/None G5/S3S4 WL	Shallow freshwater marsh. Dense tule thickets for nesting, interspersed with areas of shallow water for foraging.	Not Expected	No suitable habitat for the species exists within the study area.
Progne subis purple martin	None/None G5/S3 SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, basinerosa pine, and Monterey pine. Nests in old woodpecker cavities mostly; also in human-made structures. Nest often located in tall, isolated tree/snag.	Not Expected	No suitable habitat for the species exists within the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Vireo bellii pusillus least Bell's vireo	FE/SE G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	Not Expected	No suitable habitat for the species exists within the study area.
Xanthocephalus xanthocephalus yellow-headed blackbird	None/None G5/S3 SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or basins. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Not Expected	No suitable habitat for the species exists within the study area.
Mammals				
Ammospermophilus nelsoni Nelson's antelope squirrel	None/ST G2/S2S3	Western San Joaquin Valley from 200-1200 ft elev. On dry, sparsely vegetated loam soils. Dig burrows or use k-rat burrows. Need widely scattered shrubs, forbs and grasses in broken terrain with gullies and washes.	Not Expected	There are two occurrences of the species documented by the CNDDB within 5 miles of the study area. However, these records are from 1918 and 1965, and due to intensive agricultural activities, suitable habitat for the species does not exist within the study area.
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not Expected	Rocky areas that could provide suitable roosting habitat for the species do not exist within the study area.
Dipodomys ingens giant kangaroo rat	FE/SE G1G2/S1S2	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain and sandy loam soils for burrowing.	Not Expected	No suitable grassland or alkali scrub habitat for the species exists within the study area. There are no occurrences of the species recorded by the CNDDB within five miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Dipodomys nitratoides brevinasus short-nosed kangaroo rat	None/None G3T1T2/S1S2 SSC	Western side of San Joaquin Valley in grassland and desert shrub associations, especially Atriplex. Occurs in highly alkaline soils around Soda Lake. Needs friable soils. Favors flat to gently sloping terrain.	Not Expected	No suitable habitat for the species exists within the study area. The study area is outside of the known range of the species.
Dipodomys nitratoides nitratoides Tipton kangaroo rat	FE/SE G3T1T2/S1S2	Saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Needs soft friable soils which escape seasonal flooding. Digs burrows in elevated soil mounds at bases of shrubs.	Not Expected	There are two occurrences of the species documented by the CNDDB within 5 miles of the study area, however one is a historical occurrence from 1918. Due to intensive agricultural activities and lack of suitable natural scrub habitat, this species is not expected to occur in the study area.
Onychomys torridus tularensis Tulare grasshopper mouse	None/None G5T1T2/S1S2 SSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Diet almost exclusively composed of arthropods, therefore needs abundant supply of insects.	Not Expected	There is one occurrence of the species documented by the CNDDB within 5 miles of the study area. However, this record is from 1918, and suitable prey species are no longer abundant within the vicinity of the study area.
Sorex ornatus relictus Buena Vista Lake ornate shrew	FE/None G5T1/S1 SSC	Marshlands and riparian areas in the Tulare Basin. Prefers moist soil. Uses stumps, logs and litter for cover.	Not Expected	One occurrence of the species was documented by the CNDDB within 5 miles of the study area in 1991. There are no suitable natural vegetation communities, stumps, logs, or leaf litter within the study area, and the study area is isolated by agricultural development.
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	No suitable habitat for the species exists within the study area or regional vicinity.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur	Rationale
Vulpes macrotis mutica San Joaquin kit fox	FE/ST G4T2/S2	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Low Potential	There are four occurrences of San Joaquin kit fox documented by the CNDDB within 5 miles of the study area, but the most recent of these is from 1991. Burrows found within the study area during the field survey were of a suitable size for kit fox (greater than 6" in diameter), but due to the heavily disturbed nature of the study area and the presence of coyotes, the potential for San Joaquin kit fox to utilize the site is low.

Regional Vicinity refers to within a 9-quad search radius of site.

FE = Federally Endangered FT = Federally Threatened FD = Federally Delisted Species

SE = State Endangered ST = State Threatened SCE = State Candidate

SSC = CDFW Species of Special Concern FP = State Fully Protected WL = State Watch List

Appendix D

United States Army Corps of Engineers Approved Jurisdictional Determination

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

November 22, 2022

Regulatory Division (SPK-2022-00507)

Idemitsu Renewables
Attn: Ms. Christine Lan
50 California Street, Suite 820
San Francisco, CA 94111-4617
christine.lan.0400@idemitsurenewables.com

Dear Ms. Lan:

We are responding to your September 22, 2022, request for an approved jurisdictional determination for the Jasmine Solar site. The approximately 492-acre project site is located near the PG&E Lakeview Substation, 35.09945°, -119.12104°, Kern County, California.

Based on available information, we concur with your aquatic resource delineation for the site, as depicted on the enclosed June 8, 2022, *Figure 4. Aquatic Resources within the Study Area* drawing prepared by Rincon Consultants, Inc. (enclosure 1). Approximately 2.31 acres of aquatic resources, consisting of agriculture basins, are present within the survey area. This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements; the location and boundaries of tidal waters conform with the high tide line defined at 33 CFR §328.3(c)(4); and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

Of these aquatic resources, we have determined that features AB-01, AB-02, and AB-03, totaling 2.31 acres, are not waters of the U.S. regulated under Section 404 of the Clean Water Act or under Section 10 of the Rivers and Harbors Act.

We are enclosing a copy of the *Approved Jurisdictional Determination Form* for your site (enclosure 2).

This approved jurisdictional determination is valid for five years from the date of this letter unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331. A *Notification of Appeal Process (NAP) and Request for Appeal (RFA) Form* is enclosed (enclosure 3). If you request to appeal this determination, you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, we must determine that the form is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that the form was received by the Division Office within 60 days of the date of the NAP. It is not necessary to submit an RFA form to the Division Office unless you object to the determination in this letter.

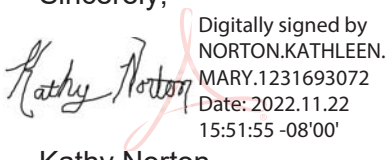
We recommend that you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

We appreciate feedback, especially about interaction with our staff and our processes.

Please refer to identification number SPK-2022-00507 in any correspondence concerning this project. If you have any questions, please contact Ms. Cecelia Working at 1325 J Street, Room 1350, Sacramento, CA 95814-2928, by email at cecelia.l.working@usace.army.mil, or telephone at 916-557-7617. For program information or to complete our Customer Survey, visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,



Kathy Norton
Senior Project Manager
CA South Section

Enclosures

cc: (w/encl)
Ms. Elizabeth Atherton, Rincon Consultants, eatherton@rinconconsultants.com

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Idemitsu Renewables, Attn: Ms. Christine Lan	File No.: SPK-2022-00507	Date: November 22, 2022

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
→	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process, you may contact:

Cecelia Working
Project Manager
CA South Section
U.S. Army Corps of Engineers
1325 J Street, Room 1350
Sacramento, California 95814-2922
Phone: 916-557-7617, FAX 916-557-7803
Email: cecelia.l.working@usace.army.mil

If you only have questions regarding the appeal process, you may also contact:

Travis Morse
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
Phillip Burton Federal Building, Post Office Box 36023
450 Golden Gate Avenue
San Francisco, California 94102-3661
Phone: 970-243-1199x1014, FAX: 971-241-2358
Email: w.travis.morse@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Appendix E

Central Valley Regional Water Quality Control Board Jurisdictional Determination

Central Valley Regional Water Quality Control Board

29 August 2022

Elizabeth Atherton
Rincon Consultants
180 N Ashwood Avenue
Ventura, CA 93003

DETERMINATION OF STATE JURISDICTION FOR PURPOSES OF DREDGE/FILL REGULATION, RINCON CONSULTANTS INC., KERN COUNTY

This letter responds to your 13 July 2022 request for a jurisdictional determination that was submitted to the Central Valley Regional Water Quality Control Board for a property scoping project for future property development. Specifically, your request is concerning the three basins identified in Table 1 below.

Table 1. Basin Locations.

Basin Name	Latitude (Degrees)	Longitude (Degrees)
Basin 1	35.094395	-119.101555
Basin 2	35.101338	-119.119473
Basin 3	35.101661	-119.110481

Central Valley Water Board staff has reviewed your submitted documents and other relevant information and finds the following:

1. The information provided did not include an aquatic resource delineation report demonstrating whether the basins in Table 1 are wetlands as defined in the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material (Procedures).
2. The property, as described in the submitted documents, contains three basins that are artificial, constructed ponds used for agricultural purposes such as agricultural crop irrigation.
3. To the extent that any of the basins listed in Table 1 are artificial wetlands as defined in the Procedures, those basins do not appear to be waters subject to regulation for the discharge of dredged or fill material (Procedures, section II and II.3.d.v.).

4. To the extent that any of the basins listed in Table 1 are non-wetland waters, those basins are excluded areas from the application procedures in the Procedures (Section IV.D.2.c.v).
5. Waste discharge requirements are not required for the discharge of fill material to the basins listed in Table 1.

The findings above only concern the discharge of clean fill material to the three basins. The discharge of any other material or waste that could affect the quality of the waters of the state, which includes groundwater, may be addressed by other Central Valley Water Board regulatory programs and require the submittal of a Report of Waste Discharge.

Concerning any future development of the property in question, best management practices to prevent soil erosion and to control sediment should be implemented. In addition, construction materials should be properly disposed of once the project is completed. If construction activity for this project involves land disturbances greater than or equal to one acre, or this project disturbs less than one acre but is part of a larger common plan of development that in total disturbs more than one acre, coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ is required. Construction activity subject to this permit includes clearing, grading, grubbing, or any other activity that results in a land disturbance such as stockpiling or excavation. If you have questions regarding the Construction Stormwater program, contact Ernesto Garcia at (559) 445-6281 or Ernesto.Garcia@waterboards.ca.gov.

If you have any questions concerning this letter, please contact Brandon Salazar at (559) 445-6278 or Brandon.Salazar@waterboards.ca.gov.

Clay L. Rodgers

for Patrick Pulupa
Executive Officer

cc: [Via email only]:CWA Section 401 WQC Program
Division of Water Quality
State Water Resources Control Board
Stateboard401@waterboards.ca.gov

Elizabeth Atherton
Rincon Consultants, Inc.
eatherton@rinconconsultants.com

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Appendix F

Cultural Resources Assessment Report



Jasmine Solar Project

Cultural Resources Assessment Report

prepared for

SF Jasmine, LLC
50 California Street, Suite 820
San Francisco, California 94111

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue, Suite 101
Fresno, California 93720

August 2022

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Please cite this report as follows:

Montgomery, Courtney, Susan Zamudio-Gurrola, Hannah Haas, Robert Guardado, Dustin Merrick, and Nichole Jordan

2022 *Cultural Resources Assessment Report for the Jasmine Solar Project.* Rincon Project No. 20-09824. On file with the South San Joaquin Valley Information Center, California State University, Bakersfield.

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Executive Summary

Rincon Consultants, Inc. (Rincon) was retained by SF Jasmine, LLC, to conduct a cultural resources assessment report for the Jasmine Solar Project (proposed Project) in the city of Bakersfield, Kern County, California. The proposed Project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at Pacific Gas & Electric's (PG&E) Lakeview Substation via a 0.5-mile generation-tie line. The proposed Project will consist of approximately 520-acres of Project site and an approximately 0.5-mile generation tie-in corridor. This cultural resources assessment report includes the results of a cultural resources records search, Native American outreach, a pedestrian survey, archival research, cultural resource documentation and evaluation, and the preparation of this technical report according to the Archaeological Resources Management Report (ARMR) guidelines set by the California Office of Historic Preservation and is in compliance with the requirements of the California Environmental Quality Act (CEQA). Kern County is the lead agency under CEQA.

The cultural resources records search did not identify any cultural resources within the project site. The Sacred Lands File (SLF) search from the Native American Heritage Commission (NAHC) was returned with negative results for site specific information regarding tribal heritage resources within the project site. A review of historic topographic maps and aerial imagery showed there were unpaved dirt roads within the project site as early as 1931. The survey conducted for the project identified three historic-aged roads within the project site. Rincon recorded the new resources (JAS-S-001, JAS-S-002, and JAS-S-003) on California Department of Parks and Recreation (DPR) 523 series forms and evaluated them for listing in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR). Rincon recommends the three roads as ineligible for listing in the NRHP or CRHR; therefore, they do not qualify as historical resources under CEQA. As such, Rincon recommends a finding of ***no impact to historical resources*** under CEQA.

Based on the current assessment, Rincon recommends a finding of ***less than significant impact to archaeological resources with mitigation*** under CEQA. The archaeological sensitivity of the project site has been identified as low based on the level of disturbance to the project site evidenced by continuous tilling and ripping due to agricultural use; however, there is always a possibility of encountering unanticipated archaeological resources during ground disturbing activities, therefore, mitigation for the treatment of unanticipated discoveries is recommended. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Cultural Resources

In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative should also be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be eligible for the CRHR and cannot be avoided by the modified project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to historical resources.

Unanticipated Discovery of Human Remains

In the unlikely event of an unexpected discovery of human remains, all ground-disturbing activities in the vicinity of the discovery will be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 will be implemented including contacting the Kern County Coroner. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access.

1 Introduction

Rincon Consultants, Inc. (Rincon) was retained by Jasmine Solar, LLC to conduct a cultural resources assessment report for the Jasmine Solar Project (proposed Project) in the city of Bakersfield, Kern County, California. The proposed Project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at Pacific Gas &Electric's (PG&E) Lakeview Substation via a 0.5-mile generation-tie line. The proposed Project will occupy approximately 520-acres of Project site and includes an approximately 0.5-mile generation tie-in corridor. This cultural resources assessment report includes the results of a cultural resources records search, Native American outreach, a pedestrian survey, archival research, cultural resource documentation and evaluation, and the preparation of this technical report according to the Archaeological Resources Management Report (ARMR) guidelines set by the California Office of Historic Preservation and is in compliance with the requirements of the California Environmental Quality Act (CEQA). Kern County is the lead agency under CEQA.

1.1 Project Location

The proposed Project site is located approximately 15 miles east of the community of Maricopa, approximately 4 miles west of Interstate 5, and approximately 2.5 miles north of State Route 166. The proposed Project site consists of three parcels along Copus Road totaling 520 acres. The Assessor Parcel Numbers include 295-130-78, 295-130-36, and 295-130-80 in Bakersfield, Kern County, California. The proposed Facility would be located on the southeast corner of Assessor Parcel Number 295-130-78. The project lies within the *Coal Oil Canyon* and *Conner SW* Quadrangles, Township 12 North, Range 21 West, Section 27, 28, 33, 34; Township 32 South, Range 26 East, Section 25, 36; Township 32 South, Range 27 East, Section 30, 31; Township 12 North, Range 21 West, Section 26, 27, 33-35; Township 32 South, Range 27 East, and Section 30-32. The project site is bounded by Copus Road to the south, Old River Road to the east, and agricultural lands to the north and west (Figure 1 and Figure 2). The project site is tilled with minimal vegetation.

1.2 Project Description

The proposed Project consists of a photovoltaic (PV) energy facility and energy storage system (ESS) within the project site capable of producing up to 70 megawatts (MW) of alternating current (AC) power and storage capacity (Project Substation). Power generated by the Project will be transferred to the PG&E Lakeview Substation *via* a 0.5-mile generation tie-in line that will enter through the northwest corner of the substation property. The existing PG&E Lakeview Substation will be modified to accommodate the Project generation tie-in line. The Project is expected to be placed in service by the end of 2023.

Project Substation. The Project Substation is proposed to be in the southeast corner of APN 295-130-78. The Project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. In order to allow for interconnection with the proposed project, the Project Substation will be expanded to accommodate for additional electrical equipment, breaker, and control switching equipment. The Project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the

regional transmission system restores operations. The Project Substation would also contain a control house building. The Project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

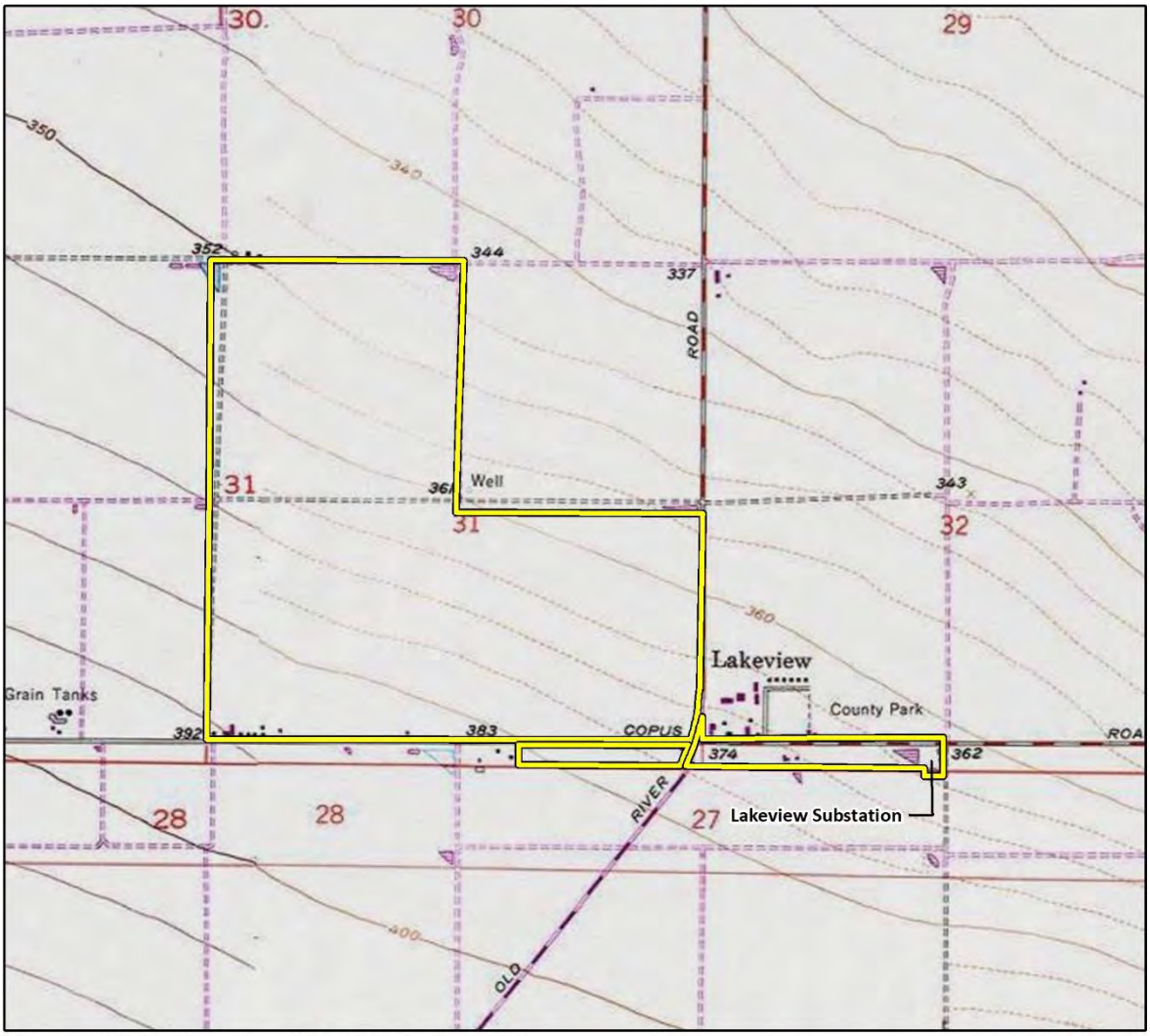
The Project Substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Lakeview Substation. The existing Lakeview Substation, operated by PG&E, would require modifications to accommodate the proposed Project gen-tie connection. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment would require the expansion of the existing Lakeview Substation, including the filling of the agricultural pond directly west of the substation.

1.3 Personnel

Rincon senior archaeologist Hannah Haas M.A., Registered Professional Archaeologist (RPA) and archaeologist Dustin Merrick, M.A., RPA provided management oversight for this cultural resources assessment and serves as principal investigator. Ms. Haas and Mr. Merrick meet the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology (National Park Service 1983). Rincon archaeologist Courtney Montgomery, M.A., conducted the records search, Native American outreach, and is a contributing author of this report. Rincon archaeologist Robert Guardado is a contributing author to this report. Rincon archaeologists Alli Berry, Kyle Montgomery, Laura Maldonado, Courtney Montgomery, and Robert Guardado conducted the pedestrian survey. Rincon Architectural Historian Susan Zamudio-Gurrola, MHP conducted archival research and evaluated the three roads in the project site for historical significance. Geographic information systems analysts Allysen Valencia prepared the figures for this report. Rincon Principals Christopher Duran, M.A., RPA and Nichole Jordan, M.A., RPA, reviewed this report for quality control.

Figure 1 Project Location Map



Basemap provided by National Geographic Society, Esri and their licensors © 2022. Coal Oil Canyon & Conner SW Quadrangles. T32S R26EW S36 & R32S R27E S31,32. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Location

0 1,000 2,000 Feet

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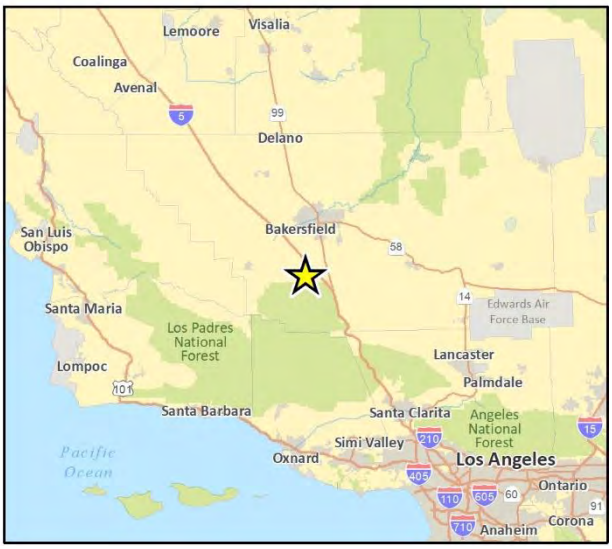
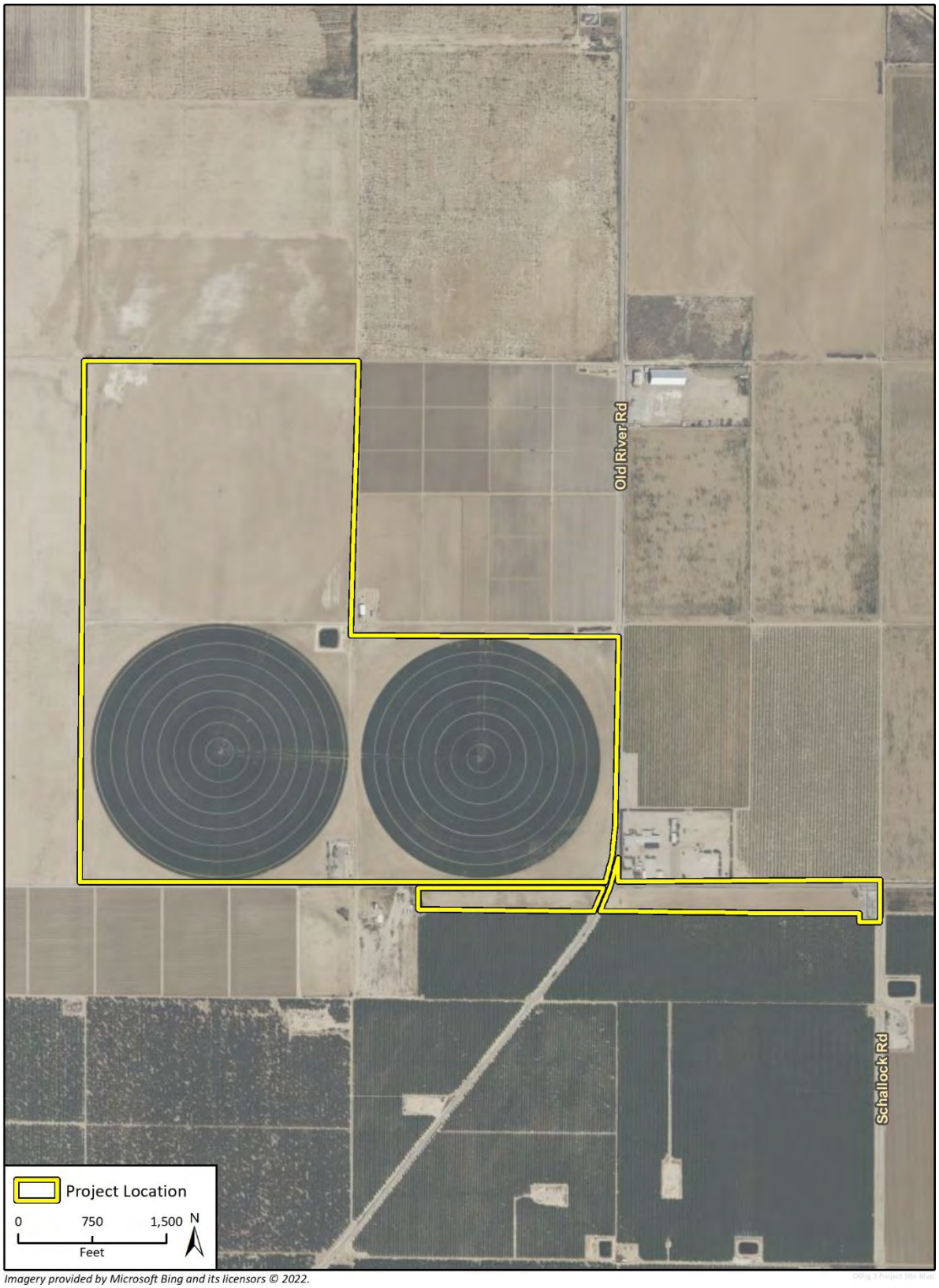


Figure 2 Project Boundary Map



2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources to which the project should adhere before and during implementation.

2.1 State Regulations

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it meets any of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years of age to be considered for listing on the CRHR. Resources that have achieved significance within the past 50 years may also be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource (Office of Historic Preservation n.d.:3).

The CRHR was consciously designed on the model of the National Register of Historic Places (NRHP), which was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (CFR 36 CFR 60.2). Under CEQA, a property which is eligible for listing in the NRHP is considered a historical resource for the purposes of CEQA. The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if:

A. Is associated with events that have made a significant contribution to the broad patterns of our history; or
B. Is associated with the lives of persons significant in our past; or

C. Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
D. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the "ability of a property to convey its significance" (National Park Service 1990). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1) Location – the place where the historic property was constructed or the place where the historic event occurred;
2) Design – the combination of elements that create the form, plan, space, structure, and style of a property;
3) Setting – the physical environment of a historic property;
4) Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5) Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6) Feeling – a property's expression of the aesthetic or historic sense of a particular period of time;
7) Association – the direct link between an important historic event or person and a historic property.

If it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be demonstrated clearly that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

2.2 Local Regulations

The Kern County General Plan lists general provisions to ensure that Kern County can accommodate the anticipated growth and development of the County while maintaining and preserving natural resources (2009). The General Plan lists the following section, policy, and implementation measures

for cultural resources within Kern County. The County does not appear to have eligibility criteria for local designation of historical resources.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

25. The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure

K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

L. The County shall address archaeological and historical resources for discretionary projects in accordance with the California Environmental Quality Act (CEQA).

M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

O. On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

3 Natural and Cultural Setting

3.1 Natural Setting

The project site is located within the city of Bakersfield in an area surrounded by agriculture and open lands. The project site is situated at an elevation of 106 meters (350 feet [ft]) above mean sea level (AMSL). Vegetation mainly consists non-native grasses and weeds.

3.2 Cultural Setting

Prehistoric Setting

The Central Valley has been described as one of the largest intermontane basins extending 650 kilometers from the Siskiyou Mountains to the Tehachapis (Rosenthal et al. 2007). No single chronological framework covers the entirety of the Central Valley, but California prehistory is generally divided into three broad time periods: the Paleoindian period (ca. 11,550–8550 B.C), the Archaic Period (8550 BCE-CE 1100) and the Emergent Occupation (CE 1000- European Contact) (Fredrickson 1973, 1974) which has been updated and adjusted by Rosenthal et al. (2007) to further separate the Archaic Period into Lower (8550 BCE–5550 BCE), Middle (5550 BCE–550 BCE), and Upper (550 BCE–CE 1100. The prehistoric chronological sequence for the Central Valley presented below is based on Rosenthal et al. (2007) and Moratto (1984).

Paleoindian Period (11,550–8550 BCE)

Little is known about the Paleoindian period in the Central Valley. Geoarchaeological studies have demonstrated that erosion and deposition have buried or destroyed early archaeological deposits. Most claims of ancient human occupation have been dismissed by Moratto (1984) based on radiocarbon dating. Currently, the earliest accepted date of human occupation in the Central Valley ranges from 11,550–8550 BCE and comes from fluted projectile points similar to Clovis points found at sites near Tracy Lake and the Tulare Lake Basin (Rosenthal et al. 2007).

Lower Archaic (8550–5550 BCE)

Climate change at the end of the Pleistocene caused significant periods of alluvial deposition beginning around 9,050 BCE The Lower Archaic, like the Paleoindian Period, is represented only by limited isolated finds. Only one Lower Archaic site located along the Buena Vista Lake Basin (KER-116) has been identified in the Central Valley proper and few in the foothills surrounding the valley (Rosenthal et al. 2007).

Typical Lower Archaic artifacts include flaked stone crescents and stemmed points. The identification of projectile points and a diverse faunal assemblage at KER-116 point to hunting being an important subsistence activity. However, milling tools and plant remains are largely absent in the valley, thus plant use during the Lower Archaic remains unclear. Several foothill sites contain milling implements and evidence of the use of nut crops such as acorn and pine (LaJeunesse and Pryor 1996). The relationship between foothill and valley floor adaptations is largely unknown during the Lower Archaic. However, distinct adaptations are apparent in the Middle Archaic, and it is possible that these divergent traditions first emerged in the Lower Archaic (Rosenthal et al. 2007).

Middle Archaic (5550–550 BCE)

The Middle Archaic began with substantial climate change to much warmer, drier conditions. Tulare Lake shrank and eventually disappeared. Fans and floodplains stabilized after an initial period of deposition in 5550 BCE Archaeological deposits dating to the Middle Archaic are rare in the Central Valley proper due to these geomorphic changes. The Middle Archaic record has revealed a pattern of organized subsistence strategies and increased residential stability. The archetypal pattern of the Middle Archaic has been identified as the Windmiller Pattern. This pattern is represented by extended burials oriented to the west and a sophisticated material culture (Rosenthal et al. 2007). Middle Archaic sites are relatively common in the foothills surrounding the Central Valley and show relatively little change from the Lower Archaic (McGuire 1995).

During this time, the mortar and pestle become more widespread suggesting a shift toward more intensive subsistence practices and higher reliance on the acorn. Fishing technologies, such as bone gorges, hooks, and spears, also appear during the Middle Archaic suggesting a new focus on fishing, especially in the Marsh Creek area. Several other technologies become apparent during this time. Baked-clay impressions of twined basketry, simple pottery, and other baked clay objects have been found at several sites. Personal adornment items also become more frequent. Exchange with outside groups is evidenced by the presence of obsidian, shell beads and ornaments (Rosenthal et al. 2007; Moratto 1984; Burns et al. 2016). Trade also seemed to be focused on utilitarian items such as obsidian or finished obsidian tools from at least five separate sources (Moratto 1984).

Upper Archaic (550 BCE–CE 1100)

The Upper Archaic began with the onset of the Late Holocene, marked by a cooler, wetter climate. The environmental conditions of the Upper Archaic were characterized by the return of lakes that had disappeared during the Middle Archaic and a renewed fan and floodplain deposition. The Upper Archaic is better represented in the archaeological record than earlier periods. Cultural diversity was more pronounced and is marked by contrasting material cultures throughout the valley (Rosenthal et al. 2007).

During this period, numerous specialized technologies were developed such as bone tools, and implements, manufactured goods such as *Olivella* and *Haliotis* beads and ornaments, well-made ceremonial blades, and ground-stone plummets. People living in the San Joaquin Valley region traded with neighboring groups for obsidian.

Upper Archaic period economies varied by region throughout the Central Valley. Economies were primarily focused on seasonal resources such as acorns, salmon, shellfish, rabbits, and deer (Rosenthal et al. 2007).

Emergent Occupation (CE 1000–Historic)

The stable climatic conditions of the Upper Archaic continued into the Emergent Period. There has been sporadic research in the San Joaquin Valley on this time period, and thus only the Pacheco Complex on the western edge of the valley has been formally defined. After CE 1000, many of the technologies witnessed during the Archaic disappeared to be replaced by cultural traditions witnessed at European contact. During the Emergent Period, the bow and arrow replaced the atlatl as the preferred hunting method sometime between CE 1000 and 1300.

Increased social complexity is evidenced by increased variation in burial types and offerings and larger residential communities. Grave offerings such as shell beads, ornaments, and ritually “killed” mortars and pestles are often found in burials. Pottery was frequently obtained through trade with

groups living in the foothills to the east. The Panoche side-notched point became important in the western side of the San Joaquin Valley (Rosenthal et al. 2007). In addition to the side-notched point, the Panoche Complex featured large circular structures, flexed burials, marine shell beads, bone awls, millingstones, and mortars and pestles (Moratto 1984).

As with the Archaic Period, Emergent Period economies varied geographically, though throughout the Central Valley fishing and plant harvesting increased in importance. Most Emergent residential sites contain diverse assemblages of mammal and bird remains and large amounts of fish bone. After 1,000 years ago, the mortar and pestle become the dominant tool type and small seeds increase in archaeological deposits over time (Rosenthal et al. 2007).

3.3 Ethnographic Overview

The project site is located in the Southern Valley Yokuts ethnographic territory (Wallace 1978). The Southern Valley Yokuts occupied the southern San Joaquin Valley south of the San Joaquin River to the foot of the Tehachapi Mountains. Adjacent native groups include the Salinan and Chumash to the west, the Foothill Yokuts to the east, and the Kawaiisu and Kitanemuk to the southeast (Kroeber 1925). The three geographical divisions of the Yokuts are the Northern Valley, Southern Valley, and Foothill Yokuts. The distinction between the three groups is primarily based on language dialect (Mithun 2001).

The Yokuts established large permanent village settlements, or closely associated smaller settlements, such as the Tulamniu village. Residential structures were most often of two types: single-family dwellings and larger communal residences that housed ten families or more. Villages frequently included mat-covered granaries and a sweathouse (Mithun 2001; Sutton et al. 2016).

The basic economic unit among the Yokuts was the nuclear family. Totemic lineages were based on patrilineal descent. Totem symbols were passed from father to offspring and families sharing the same totem formed an exogamous lineage. Totems were associated with one of two moieties, a division which played a role during ceremonies and other social events (Wallace 1978).

Yokuts were split into self-governing local groups, most often including several villages. Each group had a chief who directed ceremonies, mediated disputes, handled punishment of those doing wrong, hosted visitors, and provided aid to the impoverished. In certain cases, settlements had two chiefs, one for each moiety. Other political positions included the chief's messenger and the spokesman (Wallace 1978).

Shamans were also an important part of Yokuts village life. The Yokuts' Shaman gained power through a dream or vision. If, after this vision, the man accepted the role as shaman, he would pray, fast, and acquire talismans to aid him in his future work. Shamans had the ability to heal the sick and served the primary role in religious life (Wallace 1978).

Yokuts subsistence generally was based on a mixed economy focused on fishing, collecting, and hunting small game. Fishermen employed tule rafts and caught fish with nets, spears, basket traps, and bow and arrow. Yokuts often gathered mussels and hunted turtles in lakes, rivers, and streams. Wild seeds and roots contributed a large portion of the Yokuts diet. Tule roots were gathered, dried, and pounded into flour to be prepared as a mush. Tule seeds and grass and flowering herb seeds were prepared in the same way. Leaves and stems of certain plants, such as clover and fiddle-neck, were also collected. Acorns, a staple of most California Native Americans, were not readily available in the Yokuts ethnographic territory. Some Yokuts tribes journeyed to neighboring groups to trade for acorns. Waterfowl was frequently hunted with snares, nets, and bow and arrow. Land mammals

and birds contributed a smaller part of the Yokuts diet. Small game was occasionally taken in snares or traps or shot with bows and arrows (Wallace 1978; Sutton et al. 2016).

Yokuts technology depended primarily on tule. Stems of the plant served as the raw material for baskets, cradles, boats, housing, and many other items. Manos and metate would be used to process food and animal hydes (Barton et al. 2010; Sutton et al. 2016). Tools such as knives, projectile points, and scraping tools were made from imported lithic materials as stone was not readily available in the Central Valley, although some tools, such as bead drills, could also be made from obsidian (Sutton et al. 2016). Marine shells secured through trade with coastal peoples were used in the manufacture of shell money and personal adornment items (Wallace 1978) and used to manufacture *Olivella* beads (Sutton et al. 2016).

3.4 Historic Overview

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of what was then known as Alta (upper) California between the mid-1500s and mid-1700s. The Spanish crown laid claim to Alta California based on the surveys conducted by Cabrillo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

By the 18th century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá that same year, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822–1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land. Five ranchos were granted in the 1840s in what would become Kern County (Perez 1982).

During the supremacy of the ranchos, landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848–Present)

The United States went to war with Mexico in 1846, which ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as US territories (Waugh 2003). The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom.

Kern County

Following the need for supplies during the Gold Rush, Colonel Thomas Baker founded a small agricultural settlement in the swamplands along the Kern River in 1861. Shortly after, the settlement became the town of Bakersfield and served the southern San Joaquin Valley and helped to form Kern County (Zonlight 1979; Hoover et al. 1990; Robinson 1961). Farming later expanded following the statewide no-fence laws in 1874, growing the farming population and the need for irrigation. To create irrigation and divert water for farming, small dams were built across the Kern River starting in 1866, creating more than 80 diversions from the Kern River to farms. The diversions later led to major canal systems that provided water across Kern County (Zonlight 1979; Berg 1971). By the 1870s, smaller canals created a water supply for individual farms and larger canal systems, such as the James Canal, were established in the 1880s, many of which remain in service today.

Although agriculture was the principal industry in Kern County into the 20th Century, petroleum exploration was not far behind and eventually came to lead the economy. Prior to the petroleum boom, petroleum was used for farm machinery. The development of the Southern Pacific Railroad

through Kern County allowed for large-scale petroleum production. Oil booms in the 1890s within Kern County brought drilling and oil companies, leading to the development and expansion of oil fields that supplied fuel for the railroad, farm machinery, ships, and automotive industry (JRP Historical Consulting Services 1993). Additionally, pipelines were constructed from oil fields to nearby towns. The Standard Oil Company constructed a pipeline from the Kern River fields to its refineries in the San Francisco Bay in 1903. As petroleum refining advances continued, Kern County oil field production grew, and California rose to become the leading petroleum producing state. By 1903, California alone had produced over 24 million barrels of petroleum, of which approximately 70% was sourced from the Kern County fields (Rintoul 1990).

Agriculture continued to be a dominant land use throughout Kern County well into the 20th Century and sizeable irrigation projects brought water to the valley at a large scale. As the canal systems within Kern County continued, larger canals were constructed, such as the Friant-Kern Canal, which was constructed from 1945 to 1951. The canal remains in service today, carrying water from the San Joaquin River, starting at Friant Dam, to Kern County and the southern San Joaquin Valley. Additionally, as new water resources were brought to the valley, an expansion in crops and related industries followed, leading to more cotton production and oil refining (JRP Historical Consulting Services 1993).

4 Background Research

Background research for the cultural resource assessment included records searches, a review of historic maps, aerial photographs, Kern County assessor data, local newspapers, and Native American outreach. A summary of each of these efforts follows.

4.1 Cultural Resources Record Search

On November 2, 2020, Rincon received search results of the California Historical Resources Information System (CHRIS) from the Southern San Joaquin Valley Information Center (SSJVIC) located at the California State University, Bakersfield. The search was conducted to identify any previously conducted cultural resources studies and previously recorded resources within the project site and a 0.5-mile radius. Background research included a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, the Built Environment Resource Directory (BERD), and the Archaeological Determinations of Eligibility list. Appendix A provides a list of the records search results.

4.2 Previous Studies and Recorded Resources

The SSJVIC records search identified seven previously conducted cultural resources studies within a 0.5-mile radius of the project site (Table 1). Of the seven previously conducted cultural resources studies, one study (KE-04245) is located within the current project site boundaries and three (KE-03528, KE-04297, and KE-04796) are located adjacent to the project site. A complete list of these studies is included in Appendix A.

The SSJVIC records search conducted for this effort identified no previously recorded resources within the project site and a 0.5-mile radius of the project site.

Table 1 Previously Conducted Cultural Resources Studies within 0.5-miles of Project Site

Report Number	Author(s)	Year	Title	Relationship to APE
KE-00320	Chavez, D.	1978	*FINAL: Cultural Resources Evaluation for the Naval Petroleum Reserve No. 1 (Elk Hills) to Rialto Crude Oil Pipeline, Kern County, California*	Outside
KE-03528	Arrington, C., B. Bass, J. Brown, C. Corey, and K. Hunt	2006	*Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California*	**Adjacent**
KE-03983	Armstrong, M., K. Larsen, and T. Jackson	2010	*Cultural Resources Inventory of the Maricopa Solar Project, Kern County, California*	Outside
KE-04245	Whitaker, A.	2010	*Lakeview-Andrews Parcel Solar PV Project -Records Search Report*	**Within**
KE-04297	Carpenter, K.	2009	*Lakeview-Andrews Parcel Solar PV Project -Records Search Report*	**Adjacent**

Report Number	Author(s)	Year	Title	Relationship to APE
KE-04609	Brunzell, D.	2013	*Cultural Resources Assessment of Century Exploration Rio Viejo Oil and Gas Exploration Project, Unincorporated Kern County, California*	Outside
KE-04796	Laurie, L. and A. Pulcheon	2014	*Archaeological Survey Report for the Old River Road Improvement Project from State Route 166 to State Route 119, Kern County, California*	**Adjacent**

Source: SSJVIC 2020

KE-03528

Study KE-03528, *Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California*, was prepared in 2006 by Cindy Arrington, Byron Bass, Joan Brown, Chris Corey, and Kevin Hunt of SWCA Environmental Consultants. This study conducted a cultural resources investigation for the maintenance of the Qwest network fiber optic line throughout California, totaling approximately 1,431 linear feet from the California-Oregon border to the California-Arizona border. A segment of the study runs along the eastern boundary of the current project site. The study presented the results of archival research, a field survey, and maintenance monitoring. The study did not result in the identification of any cultural resources within or adjacent to the current project site.

KE-04245

Study KE-04245, *Lakeview-Andrews Parcel Solar PV Project -Records Search Report*, was conducted by Adrian Whitaker of the Far Western Anthropological Research Group, Inc. (Far Western) in 2010. The letter report documented the results of a records search conducted at the SSJVIC. Whitaker reported that no cultural resources had been previously recorded within the study area. As the analysis of the report was based on records search results alone, it was recommended that a field reconnaissance survey be conducted to determine the presence of surface cultural resources. The study reviewed a portion of the southeast section of the current project site and did not identify any cultural resources within the current project boundaries.

KE-04297

Study KE-04297, *Lakeview-Andrews Parcel Solar PV Project -Records Search Report,* was conducted by Kim Carpenter of Far Western in 2009. The Letter report documented efforts to assess the cultural sensitivity of the PG&E's proposed Lakeview photovoltaic project. In support of the analysis, Far Western conducted a Native American Heritage Commission Sacred Lands File search, records search of the project area and a 0.25-mile radius, a buried site sensitivity analysis, and pedestrian survey. The study reviewed a portion of the northwest section of the current project site approximately 0.5-miles from Corpus Road. The study did not identify any cultural material within the current project site.

KE-04796

Study KE-04796, *Archaeological Survey Report for the Old River Road Improvement Project from State Route 166 to State Route 119, Kern County, California*, was conducted by Leroy Laurie and Andrew Pulcheon of LSA Associates, Inc. in 2014 for the California Department of Transportation

(Caltrans) District 6. The study evaluated 13 miles of Old River Road from State Route 166 to State Route 119 for asphaltic concrete overlay. The study included background research, records search of the SSJVIC, Native American consultation, and a field survey. The study reviewed a portion of the eastern section of the current project site along Old River Road. The study did not identify any cultural resources within the current project site.

4.3 Historical Imagery Review

Rincon reviewed historical aerials and topographic maps from HistoricAerials.com and from the United States Geologic Survey (USGS) "TopoView" webpage. These images were reviewed to identify potential cultural resource concerns on the project site. Historical topographic maps from 1910 to 1932 depict the project site as undeveloped and bounded by Copus Road to the south and Old River Road to the east (USGS 2020, NETR Online 2020). The 1931 *Hayes Ranch* and 1934 *Coal Oil* Quadrangle topographic maps depict an east-west trending road along the north project boundary (USGS 2020). The 1955 *Conner SW* and *Coil Oil* quadrangle topographic maps depict two roads intersecting the project site, the first is a north-south trending road along the western project boundary and the second an east-west trending road extending throughout the project site originating from the middle of the north-south trending road. Aerial imagery from 1952 through 2016 confirms the presence of the roads throughout the project site and depict the project site as agricultural (NETR Online 2020). Aerial imagery from 2014 to 2016 confirms that the Lakeview Substation was replaced and expanded sometime after 2014 (NETR Online 2020).

4.4 Native American Outreach

Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020 to request a Sacred Lands File (SLF) search of the project site. The NAHC emailed a response on November 5, 2020, stating that the SLF search was returned with "negative" results for tribal heritage resources. The response from the NAHC also included a contact list of 19 local Native American groups and individuals that may have knowledge of tribal heritage resources within the project site. Rincon prepared and emailed letters to the Native American contacts provided by the NAHC to request information regarding their knowledge of tribal heritage resources within the vicinity of the project site that may be impacted by the project on November 6, 2020. Correspondence is summarized below and a detailed account can be found in Appendix B of this report.

The letter emailed to Julio Quair, Chairperson of the Chumash Council of Bakersfield, was rejected due to a problem with the recipient's mailbox. Rincon called Mr. Quair with the number provided by the NAHC; however, Rincon did not receive a response and was not able to leave a voice message.

Jairo Avila, Tribal Historic and Cultural Preservation Officer for the Fernandeño Tataviam Band of Mission Indians (FTBMI), responded on November 6, 2020 via email stating that the project is situated outside of the FTBMI's ancestral tribal boundaries and that the tribe defers consultation for the project to local tribes.

On November 2, 2020, Ryan Nordness, Cultural Resource Analyst for the San Manuel Band of Mission Indians (SMBMI), responded email stating that the project is located outside of Serrano ancestral territory and the SMBMI will not be requesting to comment or review the project.

As of the date of this report no other responses have been received.

5 Fieldwork

5.1 Pedestrian Survey Methods

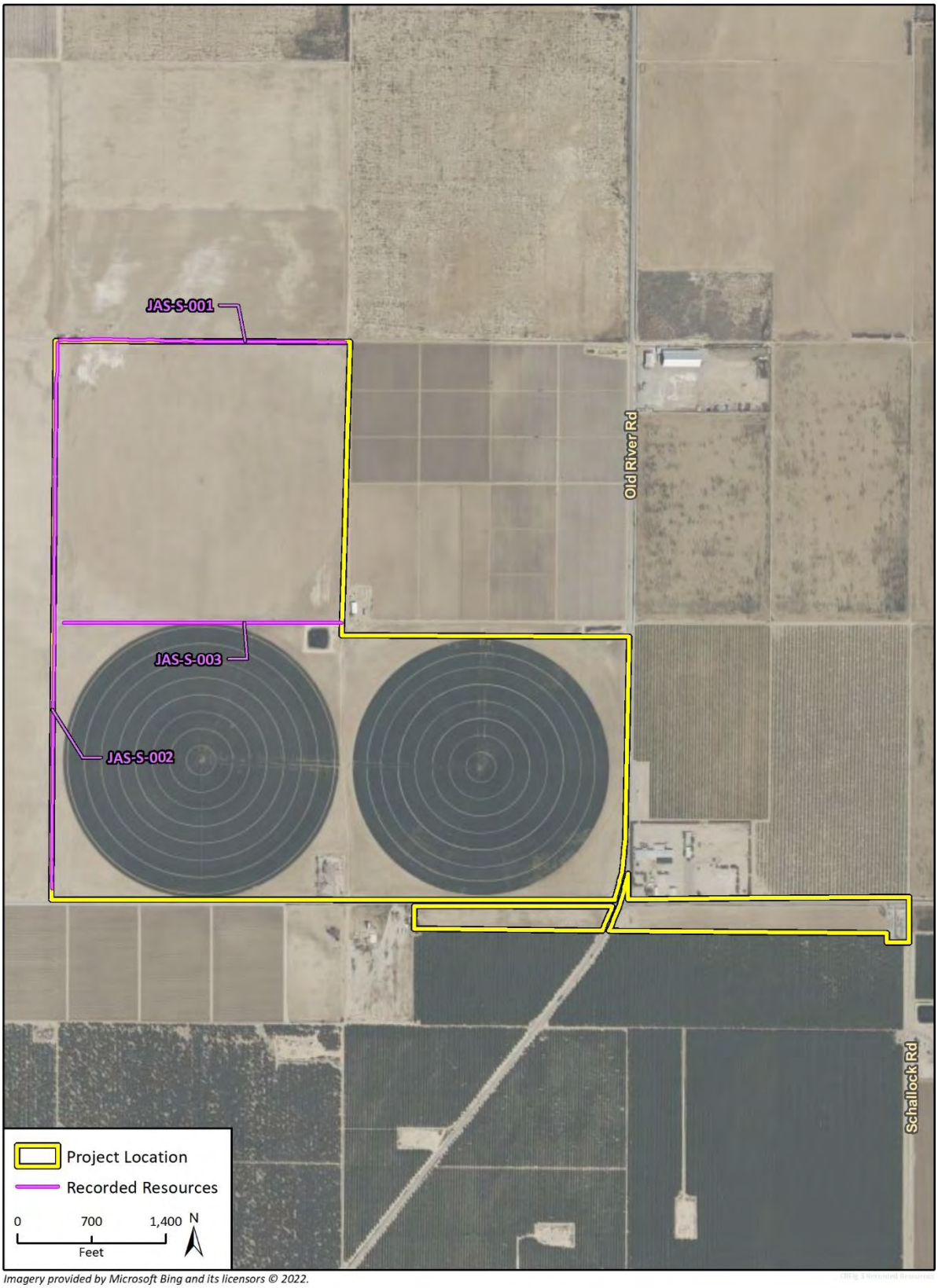
Rincon archaeologists Courtney Montgomery, Alli Berry, Laura Maldonado, and Kyle Montgomery conducted a pedestrian survey of the project site between November 9, 2020, and November 11, 2020, and on July 23, 2022, Rincon archaeologist Robert Guardado completed the pedestrian survey on the project. The project site was surveyed using transects oriented generally east-west and spaced no more than 15 meters apart across the project site. Fifteen meter transects are consistent with industry standards and used within the southern San Joaquin Valley. The survey team examined exposed ground surfaces for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock [FAR]), ecofacts (bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were visually inspected. Under the guidance of and with input from qualified architectural historian Susan Zamudio-Gurrola, MHP, built environment features were photographed and recorded on California Department of Recreation (DPR) 523 series forms, which are included in Appendix C of this report. Survey notes were prepared by the surveyors and are available upon request.

5.2 Results

Vegetation within the project site consisted of minimal grasses and shrubs with no landscaping. Bare ground visibility was excellent (100%) throughout the project site. Disturbances to the project site were evidenced by recent tilling and animal burrowing. During the current effort, the surveyors noted modern and unmodified faunal remains (rodent, cow, coyote, and bird). Rincon identified, recorded, and evaluated three previously unrecorded unpaved roads (JAS-S-001, JAS-S-002, and JAS-S-003) as a result of the field efforts. Each of these resources is discussed in further detail below and depicted in Figure 3.

Additionally, the surveyors observed a wood-pole transmission line along the northern boundary of the project site. Upon field inspection, the surveyors noted that the wood transmission poles appeared to be recent replacements. As a ubiquitous property type with modern components, Rincon therefore did not record the transmission line as a new resource.

Figure 3 Recorded Resources in Project Site



JAS-S-001

Resource JAS-S-001 is an approximately 0.5-mile long segment of a historic-age, unpaved, unnamed dirt road that generally trends east-west off Old River Road, approximately one mile north of the Copus Road and Old River Road intersection. The segment of the road that was recorded measures 7.5 feet wide with no discernable berm on either side (Figure 4). The road borders the northern edge of the project site and extends past the current project site boundaries to the east and west, but its entire length is not known.

The unpaved road is first depicted on the 1931 *Hayes Ranch* Quadrangle map. Surrounding land to the northwest was labeled "Hayes Ranch" throughout the 1930s and 1940s, thus, it is possible the unpaved road was utilized by the ranch (USGS 1931 and 1947). No buildings or structures were depicted in the vicinity of the road segmented in the project site. By the 1950s, the subject road appears to have served to access a water reservoir and a handful of structures built near what would be the western edge of the current project site. These structures appear to no longer be extant. Additional unpaved roads were developed by that time, branching off Copus Road to the north and traversing the agricultural land (USGS 1956a). The road alignment and width appear largely the same through present day (Environmental Data Resources, Inc. 2020; Google Earth). The subject road appears to have served the local property owner(s) to access agricultural infrastructure. No additional consequential information was found on property owners in the area of the subject road based on available data.

Figure 4 View of JAS-S-001, Facing West



JAS-S-002

Resource JAS-S-002 is a historic-age, unpaved, unnamed dirt road that generally trends north-south, approximately one mile west of the Copus Road and Old River Road intersection. The road is approximately one mile long and 10 feet wide, with a discernable berm on the west side of the northern portion of the Project site (Figure 5). The road borders the Project site on the west but does not extend outside of the project site boundaries.

The unpaved road was first depicted on the 1955 *Conner SW* Quadrangle topographic map (USGS 2020). At the time, a water reservoir was located near its intersection with Copus Road. In the 1950s, the road provided access from Copus Road to a water reservoir and a handful of structures

near what would be the western edge of the current Project site. (These structures appear to no longer be extant). The subject road appears to have served the local property owner(s) to access agricultural infrastructure. No additional consequential information was found on property owners in the area of the subject road, based on available data.

Figure 5 View of JAS-S-002, Facing North



JAS-S-003

Resource JAS-S-003 is an approximately 0.5-mile-long segment of a historic-age, unpaved, unnamed dirt road that generally trends east-west and is located approximately 0.7-mile northwest of the intersection of Copus and Old River roads. The road runs through the project site and extends past the project boundary to the east; thus, for a total length of approximately one mile. JAS-S-003 is accessible via JAS-S-002 and spans to the east through the center of the project site. The segment of the road that was recorded measures 7.5 feet wide with no discernable berm on either side (Figure 6).

The unpaved road was first depicted on the 1956 *Conner SW* and *Coal Oil* Quadrangle maps and led to a well that was located on the current project site (USGS 1956a and 1956b). The alignment and width appear largely the same as it was in 1970 (USGS 1970). This road appears to have served the local property owner(s) to access agricultural infrastructure. No additional consequential information was found on property owners in the area of the subject road, based on available data.

Figure 6 View of JAS-S-003, Facing East



6 Significance Evaluation

Although there is no federal nexus for the project, as detailed in the Regulatory Setting (Section 2), properties which are eligible for listing in the NRHP are considered a historical resource under CEQA. Resources recorded and/or updated as part of the current assessment were evaluated for NRHP eligibility.

6.1 National Register of Historic Places

A resource is considered eligible for NRHP listing if the quality of significance in American history, architecture, archaeology, engineering, or culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
B. Are associated with the lives of persons significant in our past; or
C. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. Have yielded, or may be likely to yield, information important in prehistory or history

6.2 California Register of Historical Resources

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2. Is associated with the lives of persons important to our past
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4. Has yielded, or may be likely to yield, information important in prehistory or history

Although many sites may provide pertinent information to the research questions listed above, a site must also maintain integrity of location, design, setting, materials, workmanship, feeling, and association. Integrity is a property's ability to "convey its significance." Should a resource meet any of the NRHP or CRHR criteria, but that resource lacks sufficient integrity, the resource may not qualify for listing. The integrity of each resource is considered during NRHP and CRHR evaluations.

JAS-S-001

Resource JAS-S-001 is a segment of a historic-age, unnamed, unpaved dirt road that generally trends east-west off Old River Road. The road was first depicted on the 1931 *Hayes Ranch* Quadrangle topographic map. The unnamed dirt road appears to have locally served property owners to access agricultural infrastructure. Archival research, including a review of the Bureau of Land Management's (BLM) General Land Office (GLO) records, did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, JAS-S-001 does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria (A/1-D4).

JAS-S-002

Resource JAS-S-002 is a historic-age, unnamed, unpaved dirt road that generally trends north-south off Copus Road. The road was first depicted on the 1955 *Conner SW* Quadrangle topographic map (USGS 2020). The unnamed dirt road appears to have locally served property owners to access agricultural infrastructure. Rincon reviewed the BLM GLO records; however, no records were found. Archival research did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, JAS-S-002 does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria (A/1-D4).

JAS-S-003

Resource JAS-S-003 is a segment of a historic-age, unnamed, unpaved dirt road that generally trends east-west approximately 0.5 miles north of Copus Road. The road is first depicted on the 1955 *Conner SW* and *Coal Oil* Quadrangle topographic maps (USGS 2020). The unnamed dirt road appears to have locally served property owners to access agricultural infrastructure. Archival research, including the BLM GLO records, did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, JAS-S-003 does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria (A/1-D/4).

7 Impact Analysis and Conclusions

7.1 CEQA Checklist

The impact analysis included here is organized based on the cultural resources thresholds included in CEQA Guidelines Appendix G: Environmental Checklist Form:

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?
c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Threshold A broadly refers to historical resources. To more clearly differentiate between archaeological and built-environment resources, we have chosen to limit analysis under Threshold A to built-environment resources. Archaeological resources, including those that may be considered historical resources pursuant to Section 15064.5 and those that may be considered unique archaeological resources pursuant to Section 21083.2, are considered under Threshold B. The conclusions of the assessment are summarized in Table 2.

Table 2 Summary of Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Mitigation Measures
Cultural Resources		
Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	No Impact	None
Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Less than significant impact with mitigation	MM CUL-1
Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	Less than significant impact	None

7.2 Impact Analysis

Threshold 1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Impact CUL-1 NO HISTORICAL RESOURCES ARE PRESENT WITHIN THE PROJECT SITE. NO IMPACTS WOULD OCCUR.

A review of aerial imagery and historical topographic maps showed local, unnamed, and unpaved roads within the project site as early as 1931. The survey conducted for the project identified three historic-age roads within the project site; these were recorded on DPR 523 series forms as JAS-S-001, JAS-S-002, and JAS-S-003, and evaluated for listing in the NRHP and CRHR. As detailed in Section 6, the roads are recommended ineligible for listing in the NRHP and CRHR, and therefore do

not qualify as historical resources under CEQA and require no further management consideration. Rincon recommends a finding of ***no impact to historical resources*** under CEQA.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

No impact would occur without mitigation.

Threshold 2:	Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Impact CUL-2 CONSTRUCTION OF THE PROPOSED PROJECT WOULD INVOLVE GROUND DISTURBING ACTIVITIES, SUCH AS GRADING AND SURFACE EXCAVATION, WHICH HAVE THE POTENTIAL TO UNEARTH OR ADVERSELY IMPACT PREVIOUSLY UNIDENTIFIED ARCHAEOLOGICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

The cultural resources records search and SLF request, as well as subsequent Native American outreach efforts, did not identify any cultural resources within the project site. Furthermore, no archaeological resources were identified during survey efforts. Based on the current assessment, Rincon recommends a finding of ***less than significant impact to archaeological resources with mitigation*** under CEQA. The archaeological sensitivity of the project site has been identified as low based on the level of disturbance to the project site by agricultural activities, such as tilling and plowing; however, there is always a possibility of encountering unanticipated archaeological resources during ground disturbing activities; therefore, mitigation or the treatment of unanticipated discoveries is recommended.

Mitigation Measures

MM CUL-1 Unanticipated Discovery of Cultural Resources

In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative should also be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources (CRHR) eligibility. If the discovery proves to be eligible for the CRHR and cannot be avoided by the modified project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to historical resources.

Significance After Mitigation

Implementation of mitigation measure MM CUL-1 would reduce potential impacts to a less than significant level by ensuring construction is halted in the vicinity of unanticipated archaeological finds until they can be evaluated and treated accordingly.

Threshold 3:	Would the project disturb any human remains, including those interred outside of formal cemeteries?

Impact CUL-3 GROUND-DISTURBING ACTIVITIES ASSOCIATED WITH PROJECT COULD RESULT IN DAMAGE TO OR DESTRUCTION OF HUMAN BURIALS. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH ADHERENCE TO THE EXISTING REGULATIONS.

In the unlikely event of an unexpected discovery of human remains, all ground-disturbing activities in the vicinity of the discovery will be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 will be implemented including contacting the Kern County Coroner. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access. Adherence to these regulations would reduce potential impacts to human remains to **less than significant**.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impacts would be less than significant with adherence to existing State regulations pertaining human remains.

7.3 Conclusions and Mitigation Measures

The Project would not result in a substantial adverse change in the significance of a historical resource; there would therefore be no impact to historical resources. Furthermore, the Project would not result in a substantial adverse change to the significance of an archaeological resource with the application of mitigation measure MM CUL-1, nor would it cause significant impacts to human remains with adherence to California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. MM CUL-1 is presented under Impact CUL-2 above.

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Appendix A

Records Search Results

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 56 **IC FILE NO.:** _____

To: Southern San Joaquin Valley Information Center

Print Name: Courtney Montgomery Date: October 20, 2020

Affiliation: Rincon Consultants, Inc.

Address: 180 N. Ashwood Avenue

City: Ventura State: CA Zip: 93003

Phone: 805-644-4455 Fax: 805-644-4455 Email: cmontgomery@rinconconsultants.com

Billing Address (if different than above): _____

Billing Email: ap@rinconconsultants.com Billing Phone: 805-644-4455

Project Name / Reference: 20-09824 Jasmine Solar

Project Street Address: 13600-13998 Copus Rd, Bakersfield, CA

County or Counties: Kern

Township/Range/UTMs: Various, see footnote on maps

USGS 7.5' Quad(s): Coal Oil Canyon and Conner SW

PRIORITY RESPONSE (Additional Fee): yes ☐ / no ☐

TOTAL FEE NOT TO EXCEED: $500
(If blank, the Information Center will contact you if the fee is expected to exceed $1,000.00)

Special Instructions:

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes ☐ / no ☐

Notes: _____

CHRIS Data Request Form

Mark the request form as needed. Attach a PDF of your project area (with the radius if applicable) mapped on a 7.5' USGS topographic quadrangle to scale 1:24000 ratio 1:1 neither enlarged nor reduced and include a shapefile of your project area, if available. Shapefiles are the current CHRIS standard for submitting digital spatial data for your project area or radius. **Check with the appropriate IC for current availability of digital data products.**

- Documents will be provided in PDF format. Paper copies will only be provided if PDFs are not available at the time of the request or under specially arranged circumstances.
- Location information will be provided as a digital map product (Custom Maps or GIS data) unless the area has not yet been digitized. In such circumstances, the IC may provide hand drawn maps.
- In addition to the $150/hr. staff time fee, client will be charged the Custom Map fee when GIS is required to complete the request [e.g., a map printout or map image/PDF is requested and no GIS Data is requested, or an electronic product is requested (derived from GIS data) but no mapping is requested].

For product fees, see the CHRIS IC Fee Structure on the OHP website.

1. Map Format Choice:

Select One: Custom GIS Maps ☐ GIS Data ☒ Custom GIS Maps **and** GIS Data ☐ No Maps ☐

Any selection below left unmarked will be considered a "no. "

Location Information:

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Locations[1]	yes ☒ / no ☐	yes ☒ / no ☐
NON-ARCHAEOLOGICAL Resource Locations	yes ☒ / no ☐	yes ☒ / no ☐
Report Locations[1]	yes ☒ / no ☐	yes ☒ / no ☐
"Other" Report Locations[2]	yes ☐ / no ☒	yes ☐ / no ☒

3. Database Information:
(contact the IC for product examples, or visit the SSJVIC website for examples)

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Database[1]		
List (PDF format)	yes ☒ / no ☐	yes ☒ / no ☐
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☐ / no ☒	yes ☐ / no ☒
NON-ARCHAEOLOGICAL Resource Database		
List (PDF format)	yes ☒ / no ☐	yes ☒ / no ☐
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☐ / no ☒	yes ☐ / no ☒
Report Database[1]		
List (PDF format)	yes ☒ / no ☐	yes ☒ / no ☐
Detail (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Excel Spreadsheet	yes ☐ / no ☒	yes ☐ / no ☒
Include "Other" Reports [2]	yes ☐ / no ☒	yes ☐ / no ☒

4. Document PDFs (paper copy only upon request)**:**

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Records[1]	yes ☒ / no ☐	yes ☒ / no ☐
NON-ARCHAEOLOGICAL Resource Records	yes ☒ / no ☐	yes ☒ / no ☐
Reports[1]	yes ☒ / no ☐	yes ☐ / no ☒
"Other" Reports[2]	yes ☐ / no ☒	yes ☐ / no ☒

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

	Within project area	Within 0.5 mi. radius
OHP Built Environment Resources Directory[3]:		
Directory listing only (Excel format)	yes ☐ / no ☒	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒
OHP Archaeological Resources Directory[1,5]:		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☒ / no ☐
Associated documentation[4]	yes ☒ / no ☐	yes ☒ / no ☐
***California Inventory of Historic Resources* (1976):**		
Directory listing only (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Associated documentation[4]	yes ☐ / no ☒	yes ☐ / no ☒

6. Additional Information:

The following sources of information may be available through the Information Center. However, several of these sources are now available on the OHP website and can be accessed directly. The Office of Historic Preservation makes no guarantees about the availability, completeness, or accuracy of the information provided through these sources. Indicate below if the Information Center should review and provide documentation (if available) of any of the following sources as part of this request.

Caltrans Bridge Survey	yes ☐ / no ☒
Ethnographic Information	yes ☐ / no ☒
Historical Literature	yes ☐ / no ☒
Historical Maps	yes ☐ / no ☒
Local Inventories	yes ☐ / no ☒
GLO and/or Rancho Plat Maps	yes ☐ / no ☒
Shipwreck Inventory	yes ☐ / no ☒
Soil Survey Maps	yes ☐ / no ☒

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[1] In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User or Conditional User under an active CHRIS Access and Use Agreement.

[2] "Other" Reports GIS layer consists of report study areas for which the report content is almost entirely non-fieldwork related (e.g., local/regional history, or overview) and/or for which the presentation of the study area boundary may or may not add value to a record search.

[3] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Includes, but not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys. Previously known as the HRI and then as the HPD, it is now known as the Built Environment Resources Directory (BERD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

[4] Associated documentation will vary by resource. Contact the IC for further details.

[5] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Previously known as the Archaeological Determinations of Eligibility, now it is known as the Archaeological Resources Directory (ARD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

California Historical Resources Information System



Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

11/2/2020

Courtney Montgomery
Rincon Consultants, Inc.
180 N. Ashwood Ave.
Ventura, CA 93003

Re: 20-09824 Jasmine Solar
Records Search File No.: 20-384

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Coal Oil Canyon and Conner SW USGS 7.5' quads. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ GIS data

Resources within project area:	None
Resources within 0.5 mile radius:	None
Reports within project area:	KE-03528, 04245, 04297, 04796
Reports within 0.5 mile radius:	KE-00320, 03983, 04609

Resource Database Printout (list):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see

http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see
http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or
http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see
http://www.slc.ca.gov/Info/Shipwrecks.html

Soil Survey Maps: Not available at SSJVIC; please see
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Celeste M. Thomson
Coordinator

Report List

SSJVIC Record Search 20-384

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
KE-00320	NADB-R - 1140041	1978	Chavez, David	FINAL: Cultural Resources Evaluation for the Naval Petroleum Reserve No. 1 (Elk Hills) to Rialto Crude Oil Pipeline, Kern County, California	URS Company	15-000115
KE-03528	Submitter - SWCA Cultural Resources Report Database No. 06-507; Submitter - SWCA Project No. 10715-180	2006	Arrington, Cindy, Bass, Bryon, Brown, Joan, Corey, Chris, and Hunt, Kevin	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	SWCA Environmental Consultants	
KE-03983		2010	Armstrong, Matthew, Larsen, Kelly, and Jackson, Thomas	Cultural Resources Inventory of the Maricopa Solar Project, Kern County, California	Pacific Legacy, Inc.	15-013849, 15-013850, 15-013851, 15-013852, 15-013853, 15-013854, 15-013855, 15-013856, 15-013857, 15-013858, 15-013859, 15-013860, 15-013861, 15-013862
KE-04245		2010	Whitaker, Adrian	Lakeview-Andrews Parcel Solar PV Project - Records Search Report	Far Western Anthropological Research Group, Inc.	
KE-04297		2009	Carpenter, Kim	Cultural Resource Sensitivity Report for the Cawley Lakeview Solar PV Project.	Far Western	
KE-04609	Submitter - BCR Consulting Project Number SYN1302	2013	Brunzell, David	Cultural Resources Assessment of Century Exploration Rio Viejo Oil and Gas Exploration Project, Unincorporated Kern County, California	BCR Consulting, LLC.	
KE-04796		2014	Laurie, Leroy and Pulcheon, Andrew	Archaeological Survey Report for the Old River Road Improvement Project from State Route 166 to State Route 119, Kern County, California	LSA Associates	

Appendix B

Native American Outreach

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003
805 644 4455 OFFICE AND FAX
info@rinconconsultants.com
www.rinconconsultants.com

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information below is required for a Sacred Lands File Search

Project Title: Jasmine Solar Project

County: Kern

USGS Quadrangle Name: Coal Oil Canyon and Conner SW

Township: 12N **Range:** 21W **Sections:** 27, 28, 33, 34

Township: 32S **Range:** 26E **Sections:** 25, 26

Township: 32S **Range:** 27E **Sections:** 30, 31

Township: 12N **Range:** 21W **Sections:** 26, 27, 33-35

Township: 32S **Range:** 27E **Sections:** 30-32

Contact Person: Courtney Montgomery

Company/Firm/Agency: Rincon Consultants, Inc.

Street Address: 7080 N. Whitney Avenue, Suite 101

City: Fresno **Zip**: 93720

Phone: (559) 558-5875 **Email:** cmontgomery@rinconconsultants.com

Project Description: The client proposes to develop the Jasmine Solar Project, a 70 MW utility-scale solar project paired with energy storage. The project will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line and approximately 520-acres. The project is subject to the California Environmental Quality Act (CEQA) and requires ground disturbance.

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

November 5, 2020

Courtney Montgomery

Rincon Consultants

Via Email to: cmontgomery@rinconconsultants.com

Re: Jasmine Solar Project, Kern County

Dear Ms. Montgomery:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
November 5, 2020

Big Pine Paiute Tribe of the Owens Valley
James Rambeau, Sr., Chairperson
P.O. Box 700 — Paiute - Shoshone
Big Pine ,CA 93513
j.rambeau@bigpinepaiute.org
(760) 938-2003
(976) 938-2942 Fax

Big Pine Paiute Tribe of Owens Valley
Sally Manning, Environmental Director
P.O. Box 700 — Paiute
Big Pine ,CA 93513
s.manning@bigpinepaiute.org
(760) 938-2003
(760) 938-2942 Fax

Big Pine Paiute Tribe of the Owens Valley
Danelle Gutierrez THPO
P.O. Box 700 — Paiute
Big Pine ,CA 93513
d.gutierrez@bigpinepaiute.org
(760) 938-2003, ext. 228
(760) 938-2942 Fax

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street — Chumash
Bakersfield ,CA 93307
chumashtribe@sbcglobal.net
(661) 322-0121

Coastal Band of the Chumash Nation
Mariza Sullivan, Chairman
P. O. Box 4464 — Chumash
Santa Barbara ,CA 93140
cbcntribalchair@gmail.com
(805) 665-0486

Fernandeno Tataviam Band of Mission Indians
Jairo F. Avila, THPO
1019 Second St., Suite 1 — Fernandeno Tataviam
San Fernando ,CA 91340
jairo.avila@tataviam-nsn.us
(818) 837-0794 Office
(818) 837-0796 Fax

Kern Valley Indian Community
Julie Turner, Secretary
P.O. Box 1010 — Kawaiisu Tubatulabal
Lake Isabella ,CA 93240
(661) 340-0032 Cell

Kern Valley Indian Community
Robert Robinson, Chairperson
P.O. Box 1010 — Tubatulabal Kawaiisu
Lake Isabella ,CA 93240
bbutterbredt@gmail.com
(760) 378-2915 Cell

Kern Valley Indian Community
Brandy Kendricks
30741 Foxridge Court — Kawaiisu Tubatulabal
Tehachapi ,CA 93561
krazykendricks@hotmail.com
(661) 821-1733
(661) 972-0445

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
115 Radio Street — Yowlumne Kitanemuk
Bakersfield ,CA 93305
2deedominguez@gmail.com
(626) 339-6785

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed: Jasmine Solar Project, Kern County.

Native American Heritage Commission
Native American Contacts List
November 5, 2020

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall ,CA 91322
ddyocum@comcast.net
(503) 593-0933
(503) 574-3308
Fernandeno
Tataviam
Serrano
Vanyume
Kitanemuk

San Manuel Band of Mission Indians
Jessica Mauck, Director-CRM Dept.
26569 Community Center Drive
Highland ,CA 92346
jmauck@sanmanuel-nsn.gov
(909) 864-8933
Serrano

Santa Rosa Rancheria Tachi Yokut Tribe
Leo Sisco, Chairperson
P.O. Box 8
Lemoore ,CA 93245
(559) 924-1278
(559) 924-3583 Fax
Tache
Tachi
Yokut

Tejon Indian Tribe
Octavio Escobedo III, Chairperson
P.O. Box 640
Arvin ,CA 93203
oescobedo@tejonindiantribe-nsn.gov
(661) 834-8566
Kitanemuk

Tejon Indian Tribe
Colin Rambo, CRM Tech
P.O. Box 640
Arvin ,CA 93203
colin.rambo@tejonindiantribe-nsn.gov
(661) 834-8566
(484) 515-4790 Cell
Kitanemuk

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226
Lake Isabella ,CA 93240
(760) 379-4590
(760) 379-4592 Fax
Tubatulabal

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville ,CA 93258
neil.peyron@tulerivertribe-nsn.gov
(559) 781-4271
(559) 781-4610 Fax
Yokuts

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas ,CA 93906
kwood8934@aol.com
(831) 443-9702
Foothill Yokuts
Mono
Wuksache

yak tityu tityu yak tiłhini - Northern Chumash Tribe
Mona Olivas Tucker, Chairwoman
660 Camino Del Rey
Arroyo Grande ,CA 93420
olivas.mona@gmail.com
(805) 489-1052 Home
(805) 748-2121 Cell
Chumash

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This list is only applicable for contacting local Native Americans Tribes for the proposed: Jasmine Solar Project, Kern County.

Rincon Consultants, Inc.

7080 N, Whitney Ave., Suite 101
Fresno, California 93720

559 228 9925 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

November 6, 2020

Jairo F. Avila, THPO
Fernandeño Tataviam Band of Mission Indians
1019 Section Street, Suite 1
San Fernando, California 91340

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Mr. Avila:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

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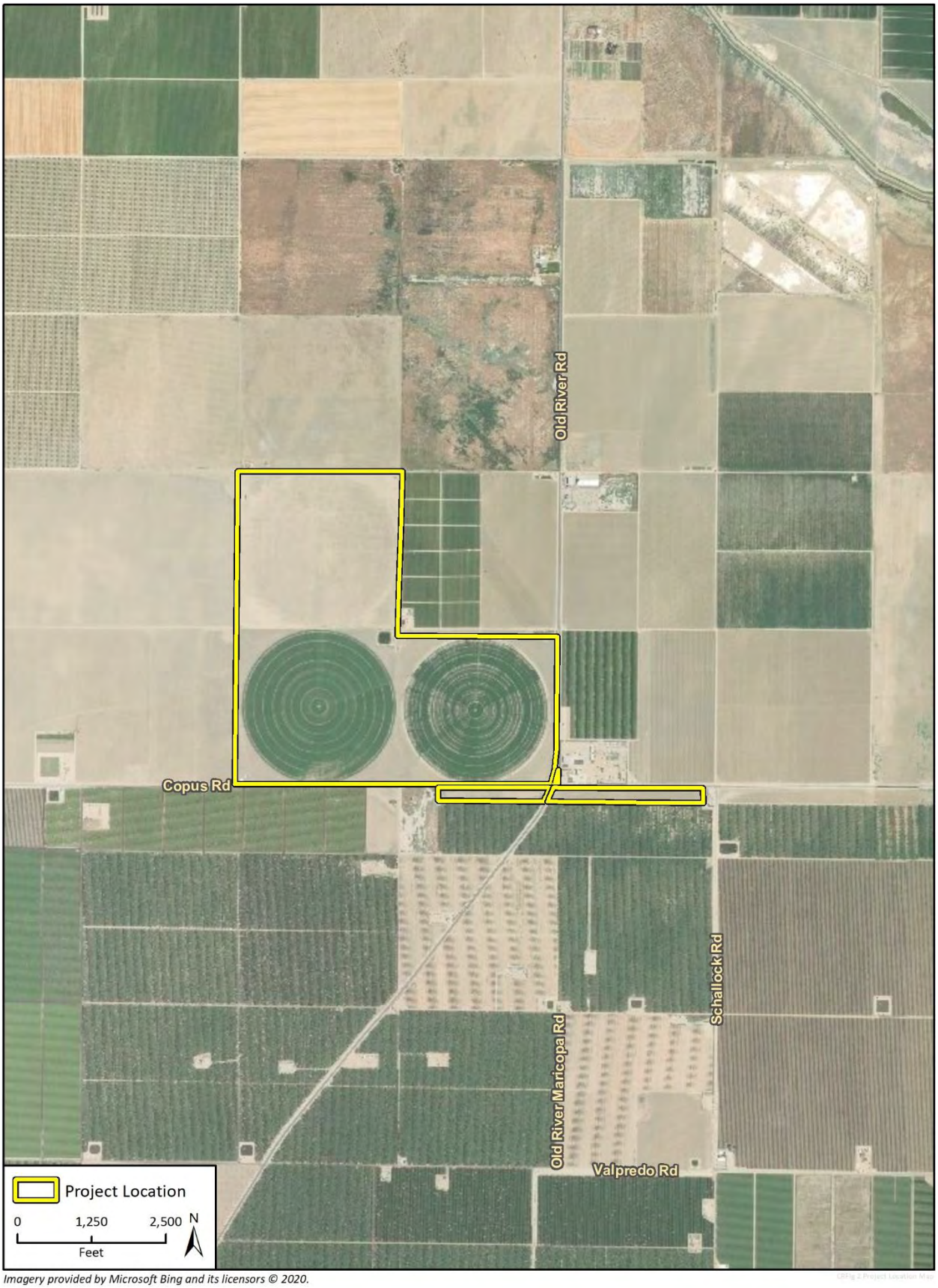
If you have knowledge of cultural resources that may exist within or near the proposed undertaking that you wish to be documented in our report, please contact me at (559) 228-9925 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Rincon Consultants, Inc.

7080 N, Whitney Ave., Suite 101
Fresno, California 93720

559 228 9925 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

November 6, 2020

Delia Dominguez, Chairperson
Kitanemuk and Yowlumne Tejon Indians
115 Radio Street
Bakersfield, California 93305

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Dominguez:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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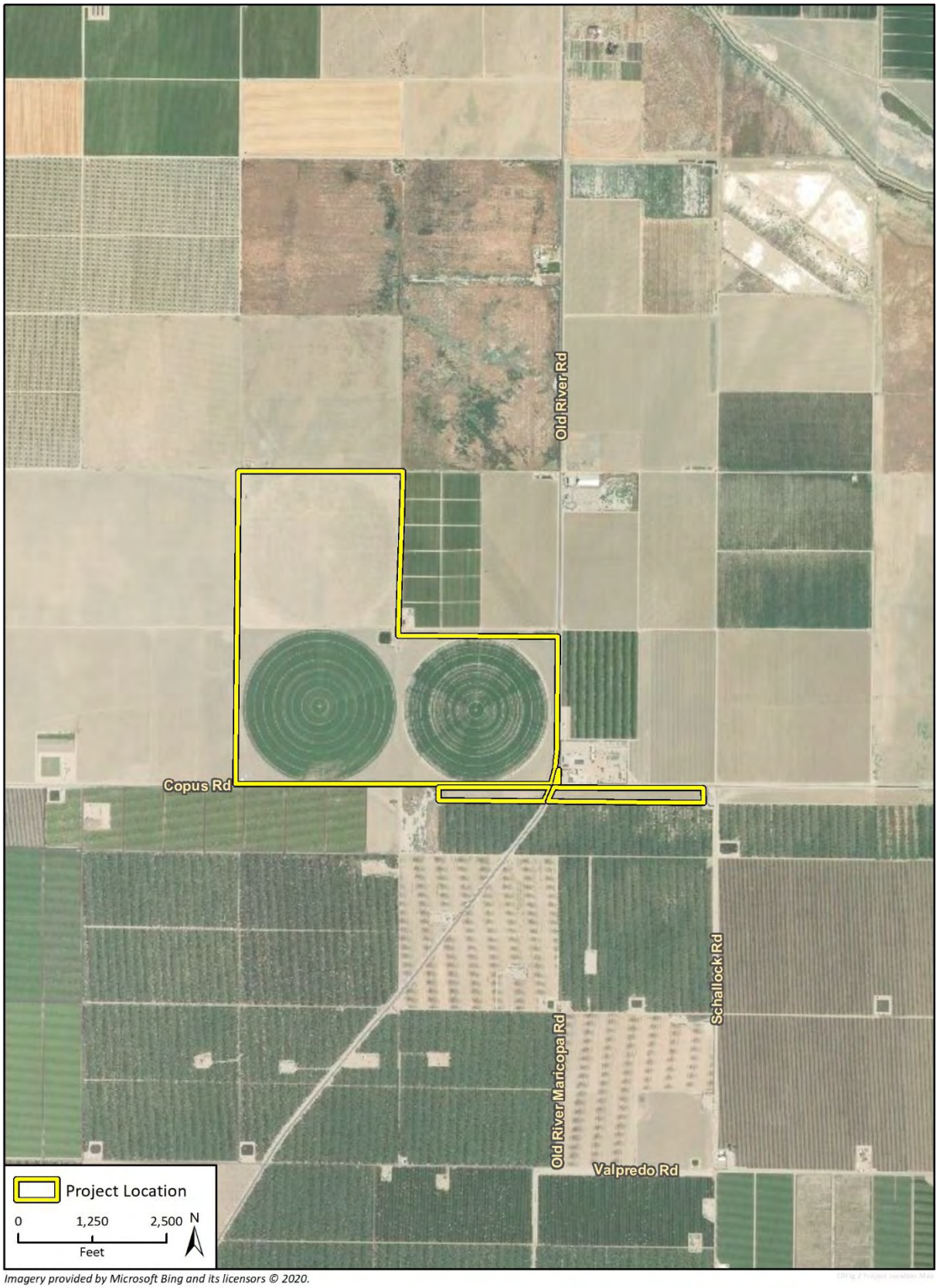
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Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Fresno, California 93720

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info@rinconconsultants.com
www.rinconconsultants.com

November 6, 2020

Octavio Escobedo III, Chairperson
Tejon Indian Tribe
P.O. Box 640
Arvin, California 93203

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Escobedo:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

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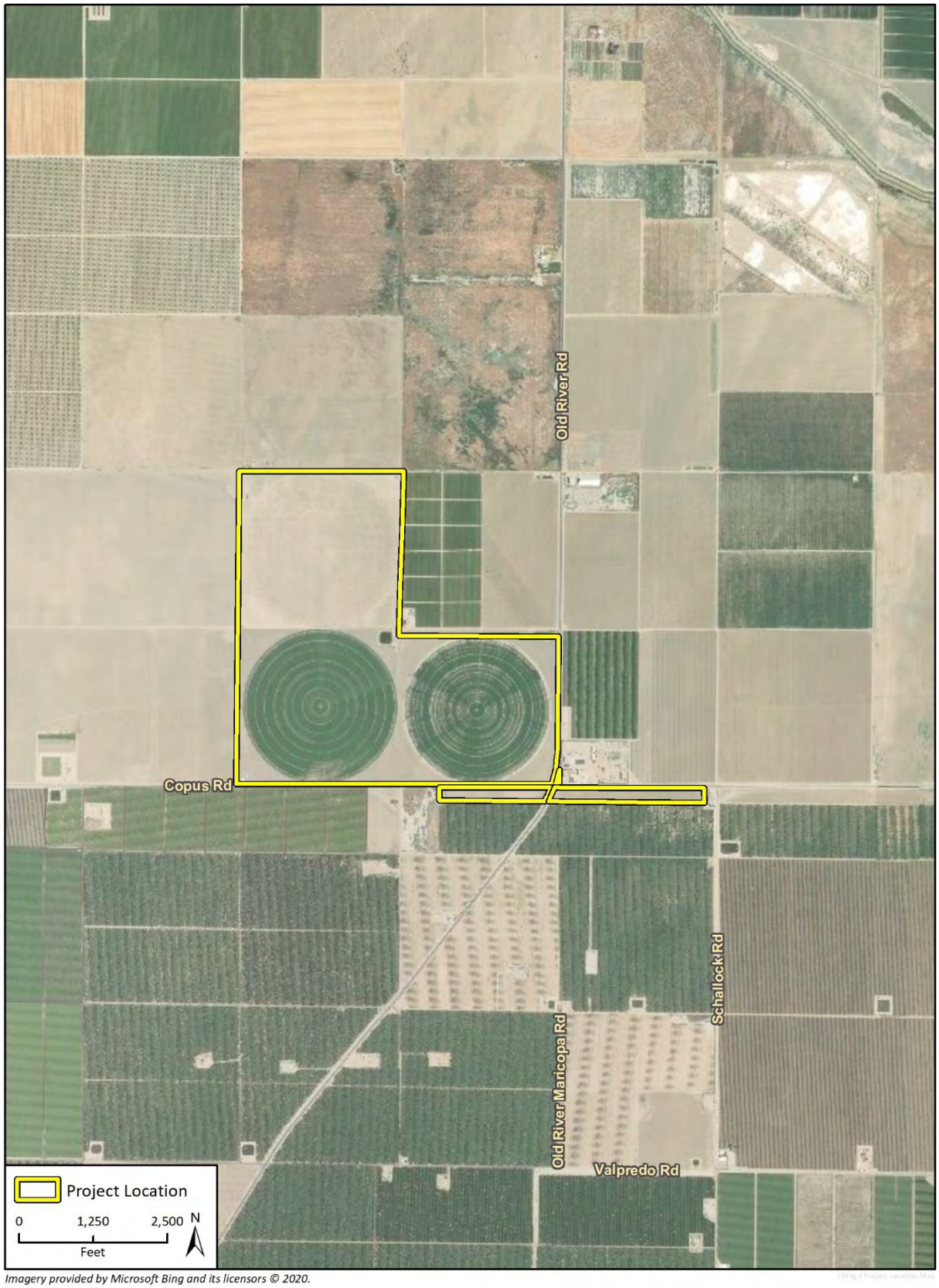
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Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Proposed Undertaking Location Map



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November 6, 2020

Robert L. Gomez Jr., Chairperson
Tubatulabals of Kern Valley
P.O. Box 226
Lake Isabella, California 93240

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Gomez:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

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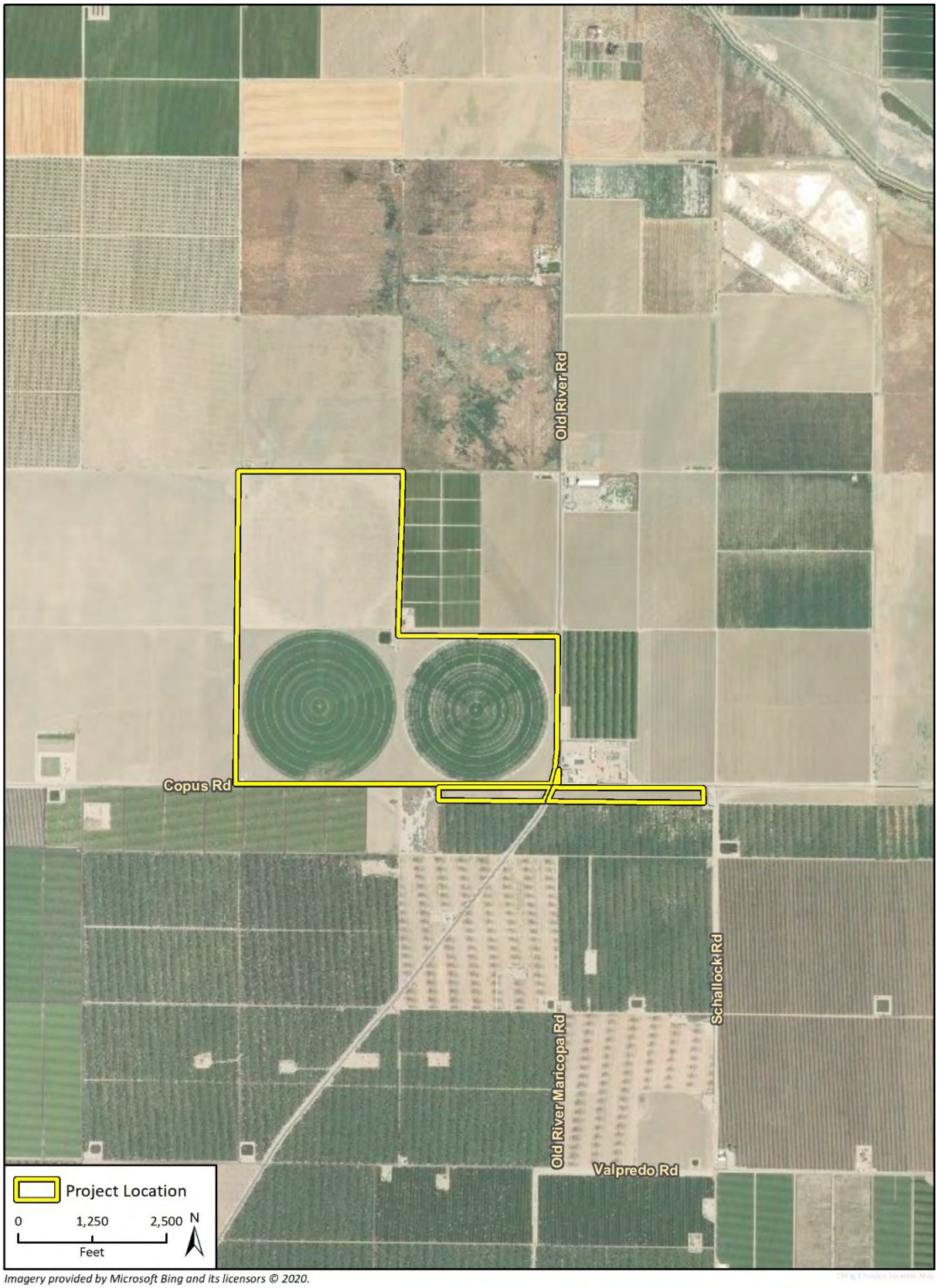
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Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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November 6, 2020

Danelle Gutierrez, THPO
Big Pine Paiute Tribe of the Owens Valley
P.O. Box 700
Big Pine, California 93513

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Ms. Gutierrez:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

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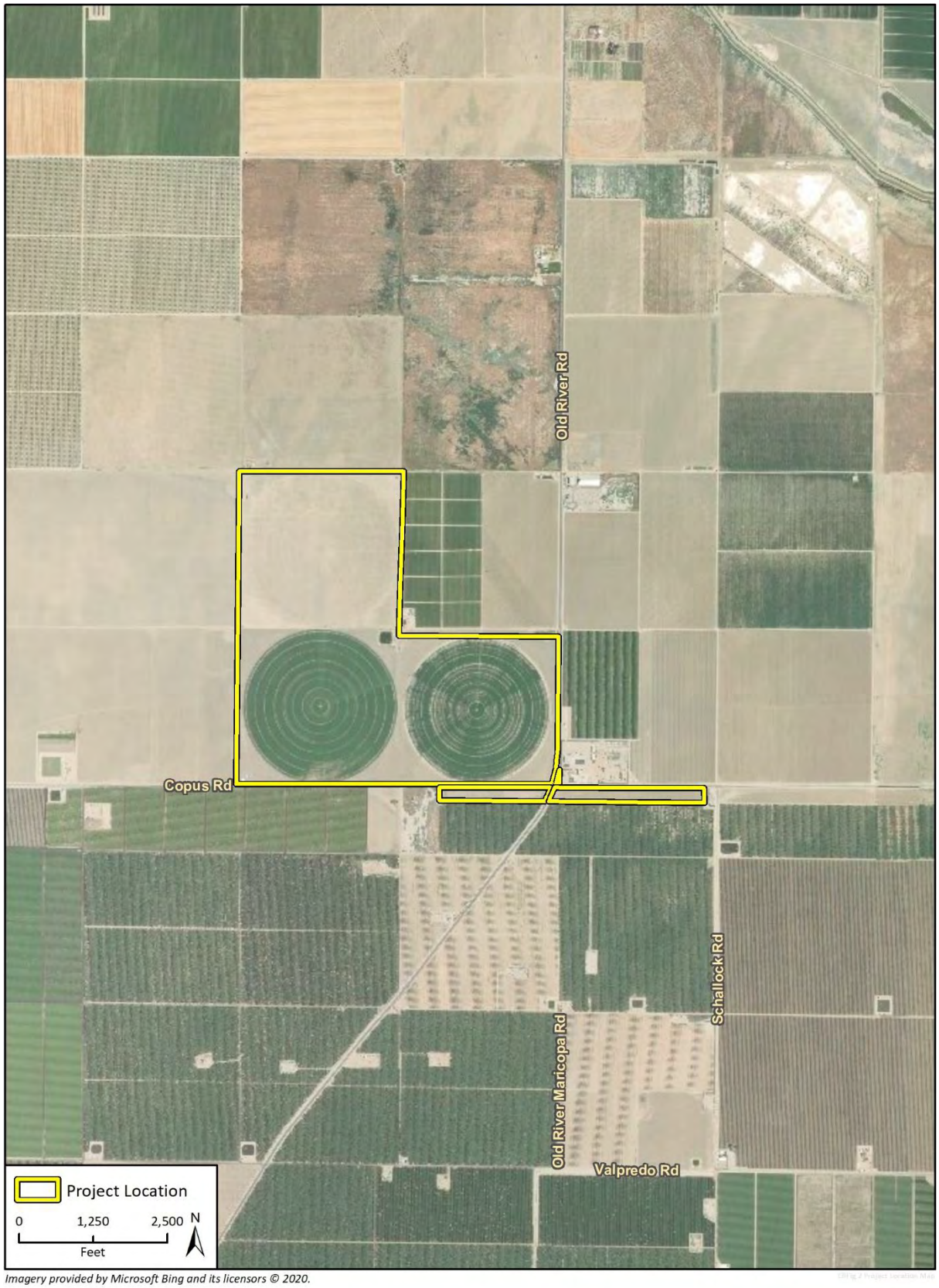
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Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Fresno, California 93720

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Fresno, California 93720

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www.rinconconsultants.com

November 6, 2020

Brandy Kendricks
Kern Valley Indian Community
30741 Foxridge Court
Tehachapi, California 93561

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Ms. Kendricks:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

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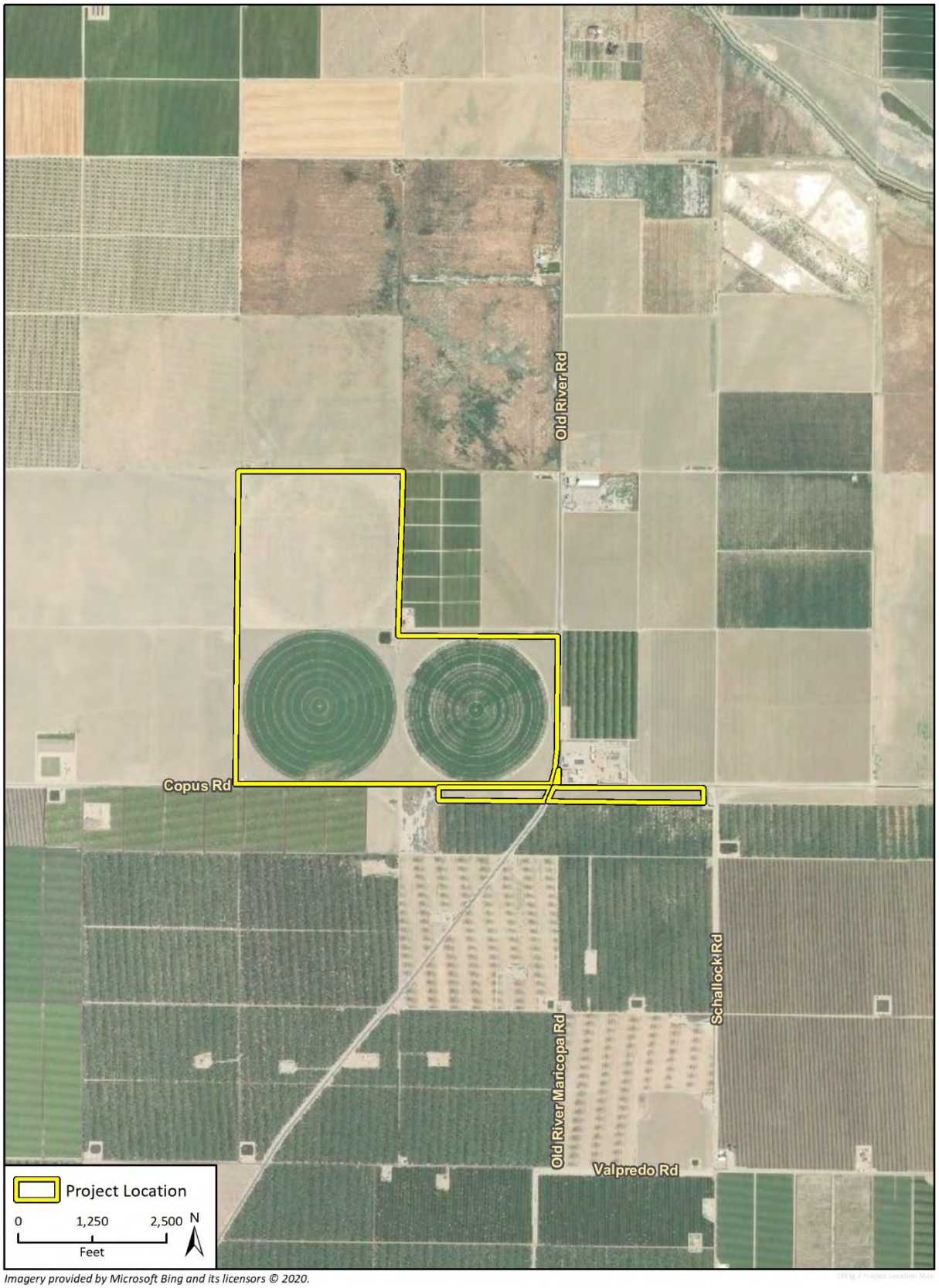
If you have knowledge of cultural resources that may exist within or near the proposed undertaking that you wish to be documented in our report, please contact me at (559) 228-9925 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Rincon Consultants, Inc.

7080 N, Whitney Ave., Suite 101
Fresno, California 93720

559 228 9925 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

November 6, 2020

Sally Manning, Environmental Director
Big Pine Paiute Tribe of the Owens Valley
P.O. Box 700
Big Pine, California 93513

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Ms. Manning:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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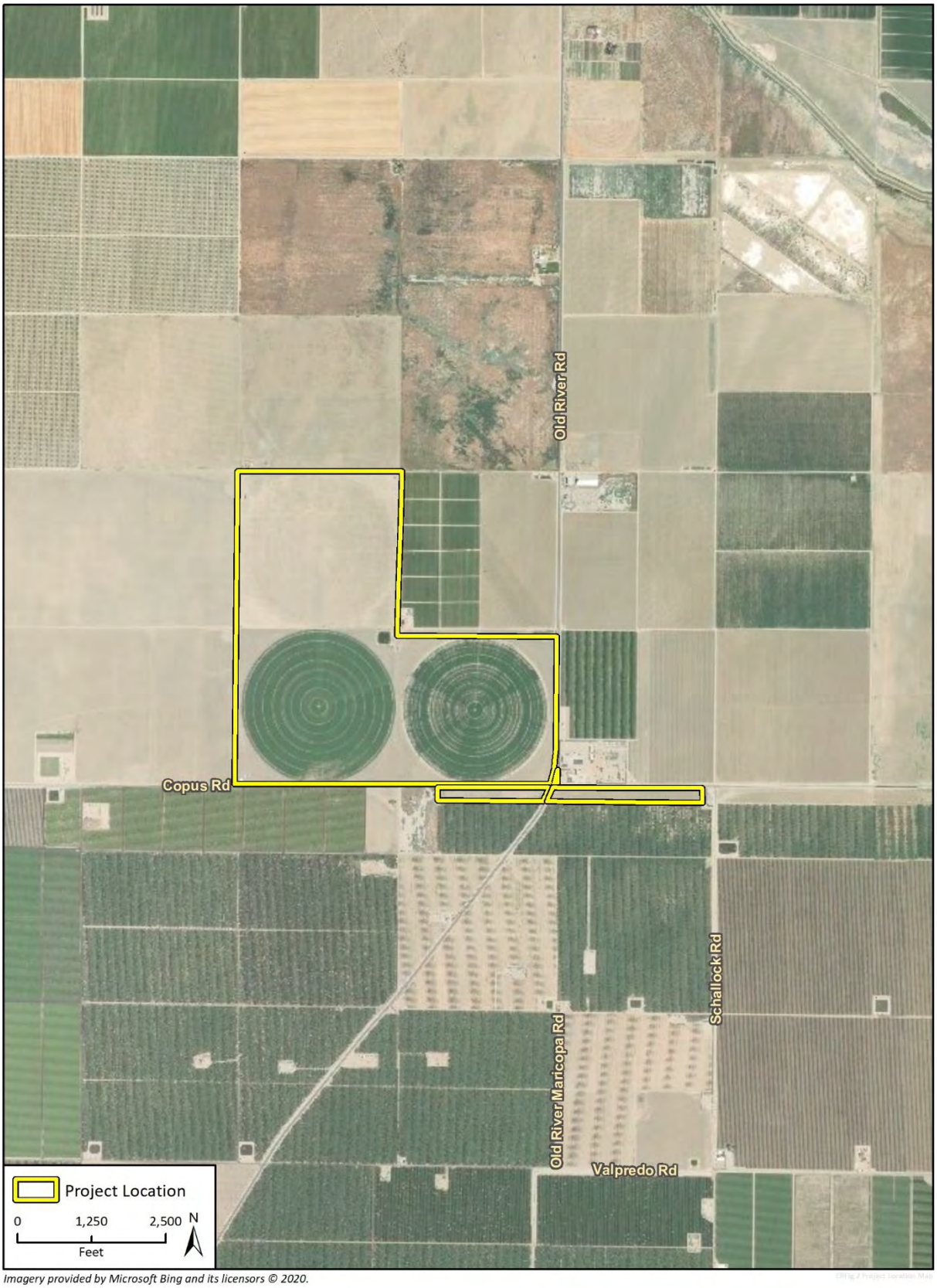
If you have knowledge of cultural resources that may exist within or near the proposed undertaking that you wish to be documented in our report, please contact me at (559) 228-9925 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Rincon Consultants, Inc.

7080 N, Whitney Ave., Suite 101
Fresno, California 93720

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www.rinconconsultants.com

November 6, 2020

Jessica Mauck, Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, California 92346

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Ms. Mauck:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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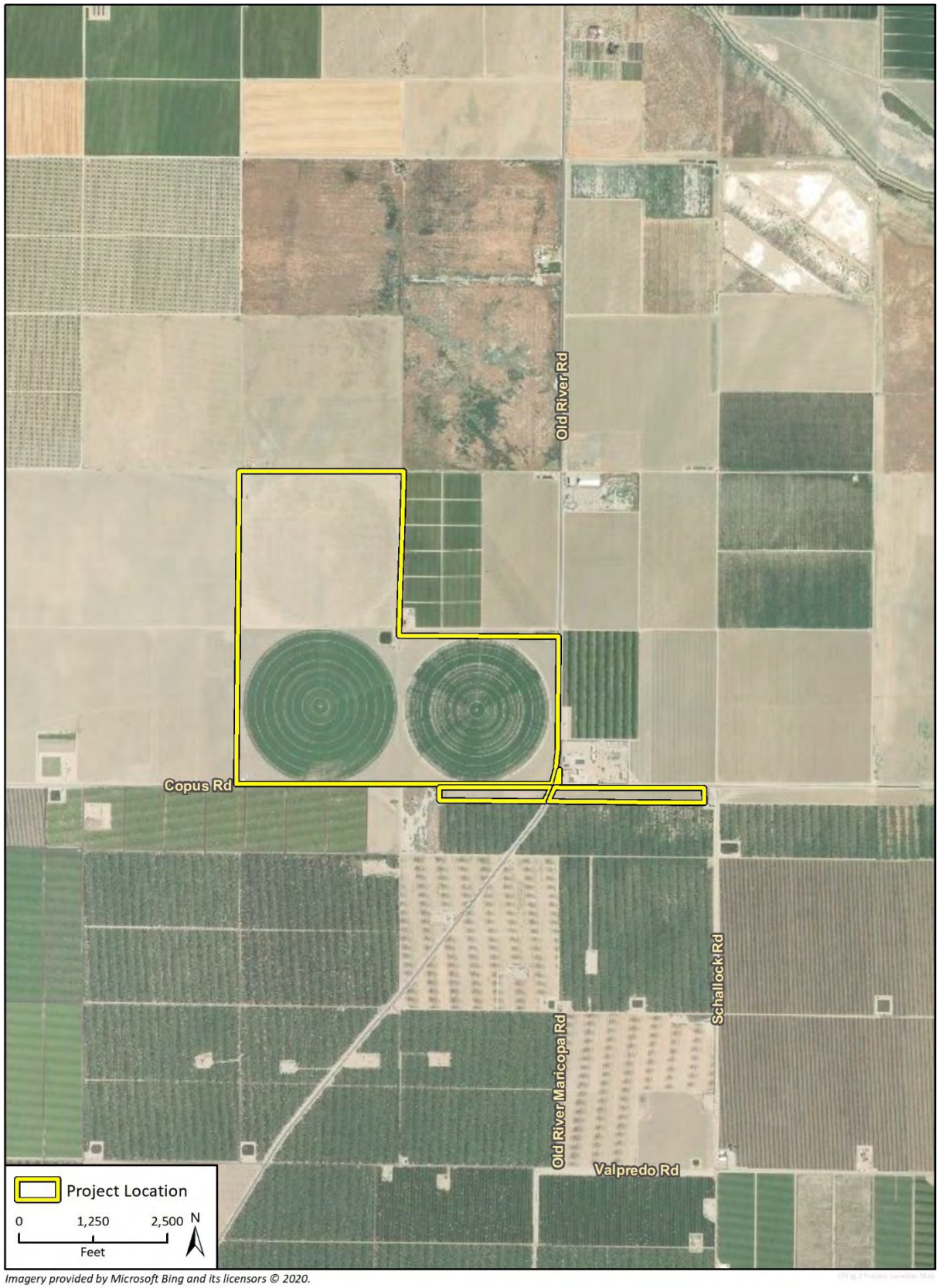
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Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

Neil Peyron, Chairperson
Tule River Indian Tribe
P.O. Box 589
Porterville, California 93258

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Peyron:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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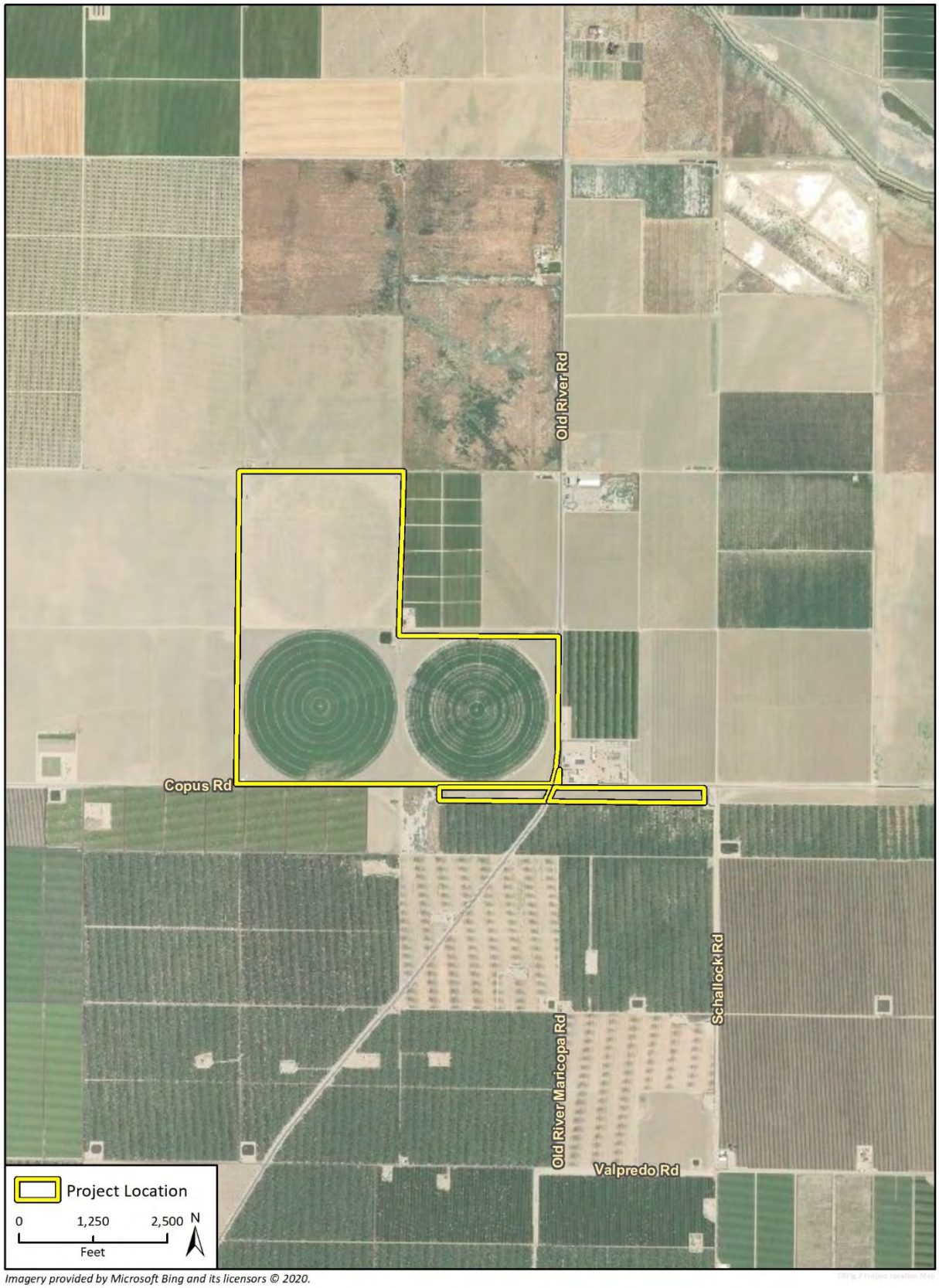
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Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

Julio Quair, Chairperson
Chumash Council of Bakersfield
729 Texas Street
Bakersfield, California 93307

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Quair:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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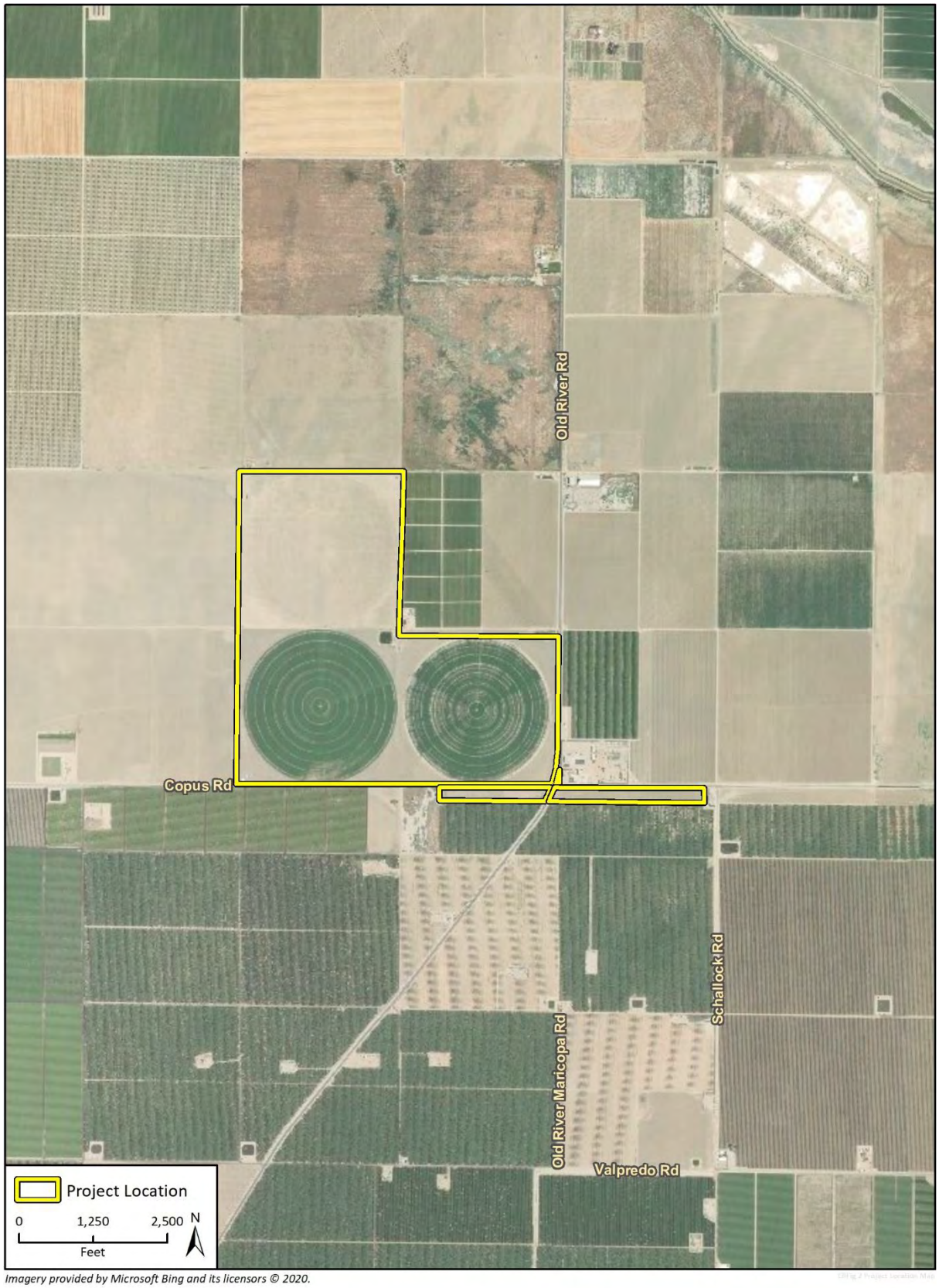
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Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

James Rambeau Sr., Chairperson
Big Pine Paiute Tribe of the Owens Valley
P.O. Box 700
Big Pine, California 93513

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Rambeau:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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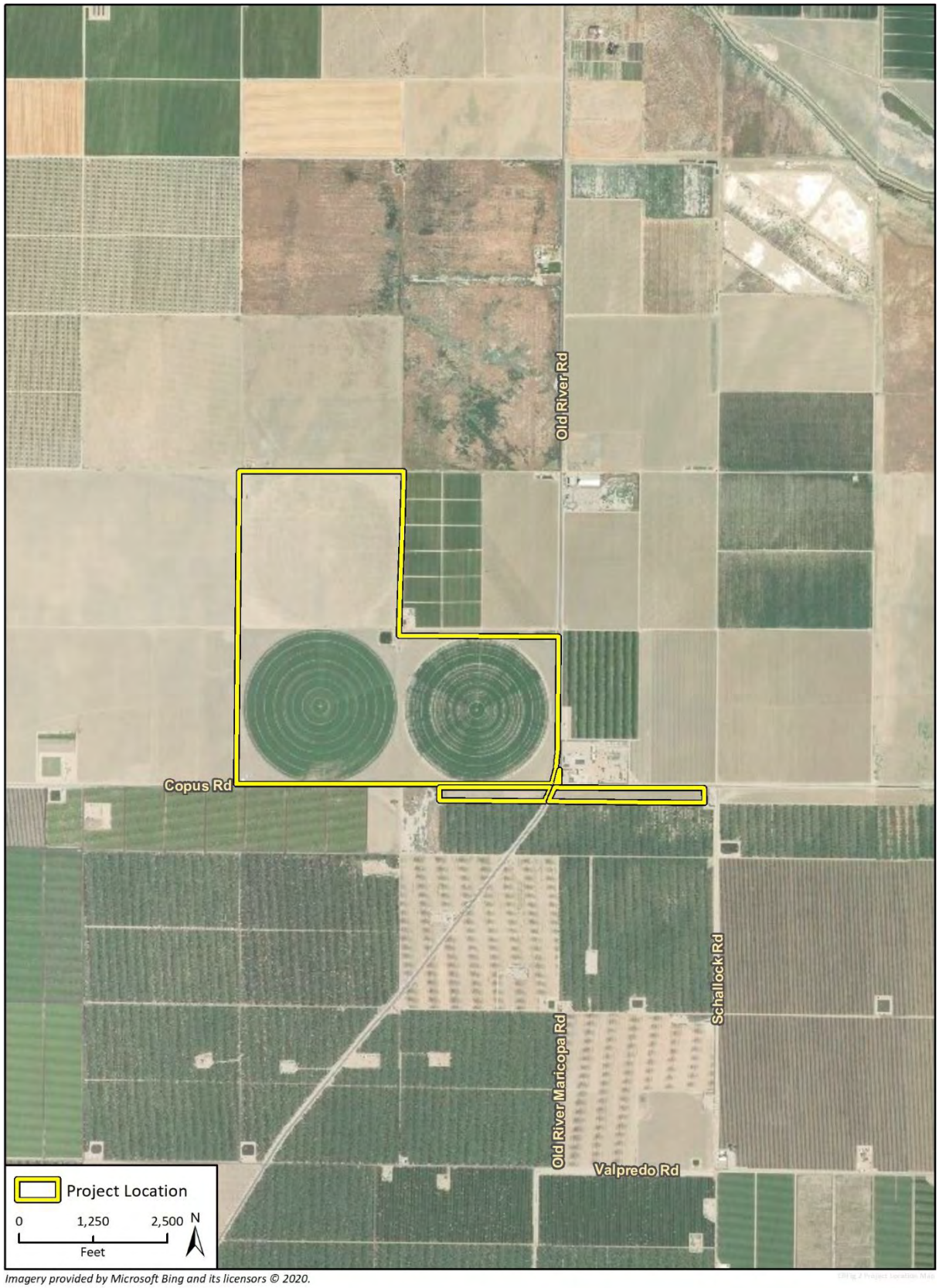
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Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

Colin Rambo
Tejon Indian Tribe
P.O. Box 640
Arvin, California 93203

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Mr. Rambo:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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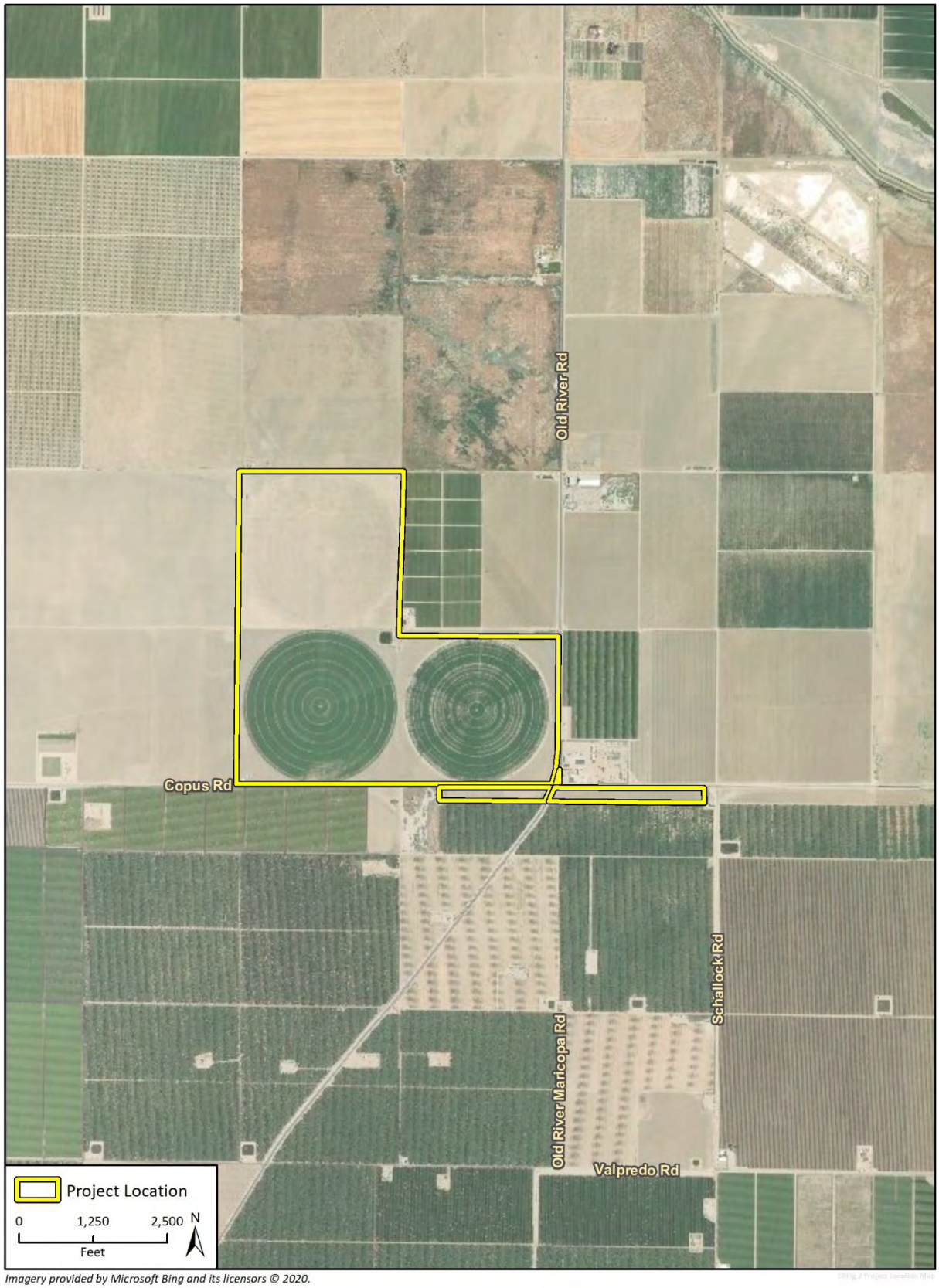
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Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

Robert Robinson, Chairperson
Kern Valley Indian Community
P.O. Box 1010
Lake Isabella, California 93240

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Robinson:

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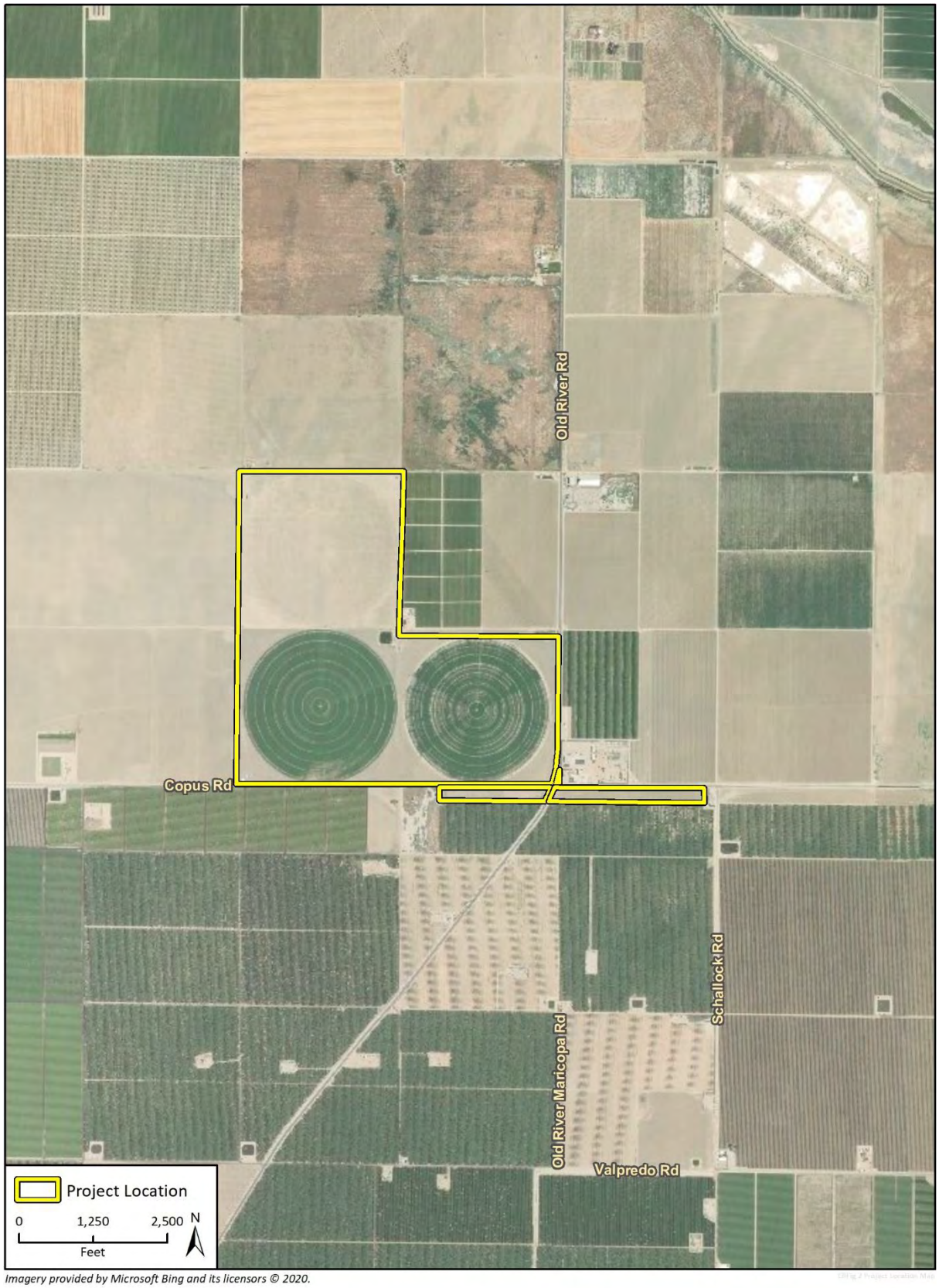
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Sincerely,
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Courtney Montgomery, M.A.
Archaeologist

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November 6, 2020

Leo Sisco, Chairperson
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, California 93245

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Sisco:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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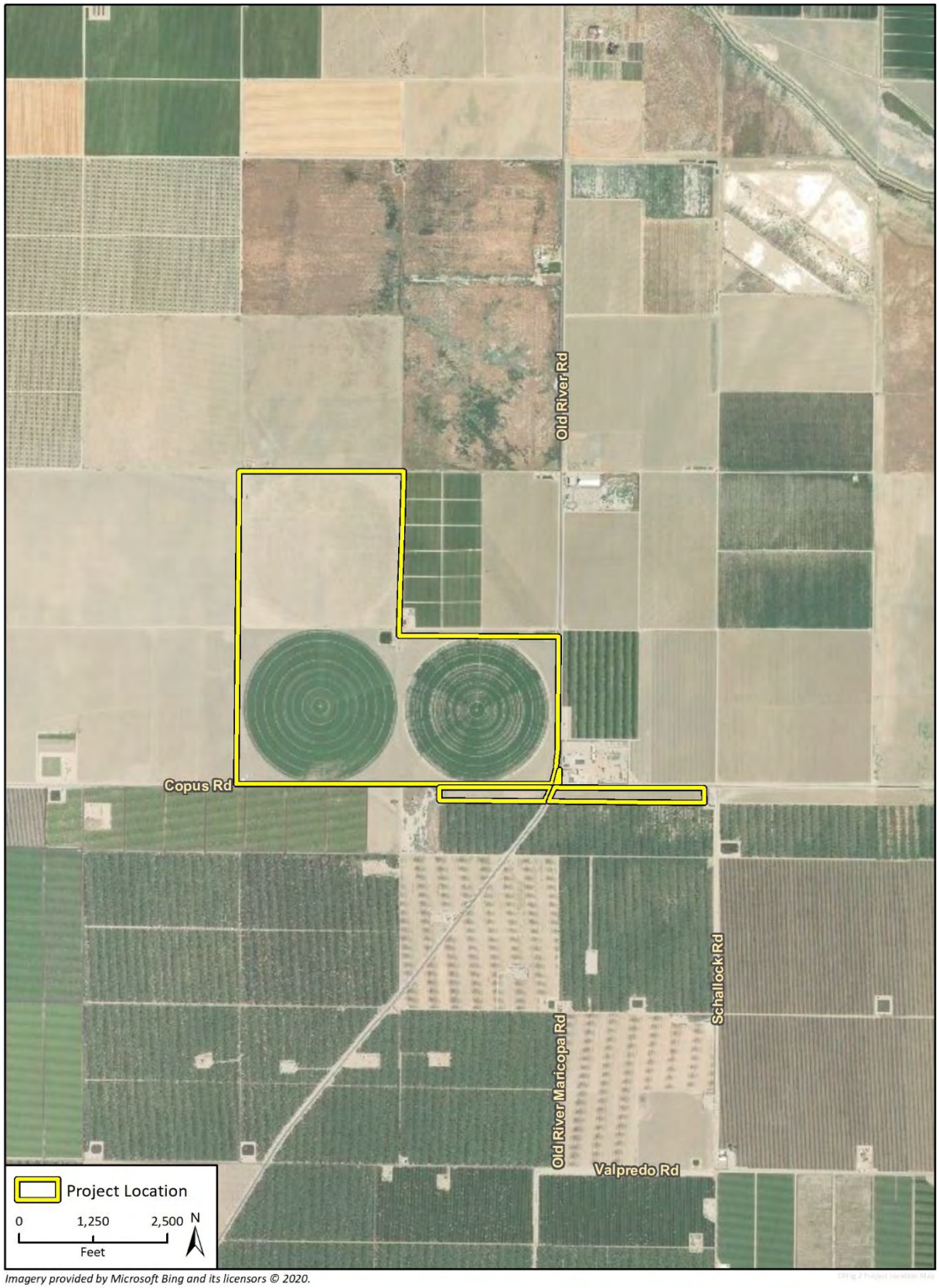
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Sincerely,
Rincon Consultants, Inc.

Hannah Haas, M.A., RPA
Cultural Resources Program Manager/Senior Archaeologist

Enclosed: Project Location Map



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November 6, 2020

Mariza Sullivan, Chairperson
Coastal Band of the Chumash Nation
P. O. Box 4464
Santa Barbara, California 93140

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Sullivan:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

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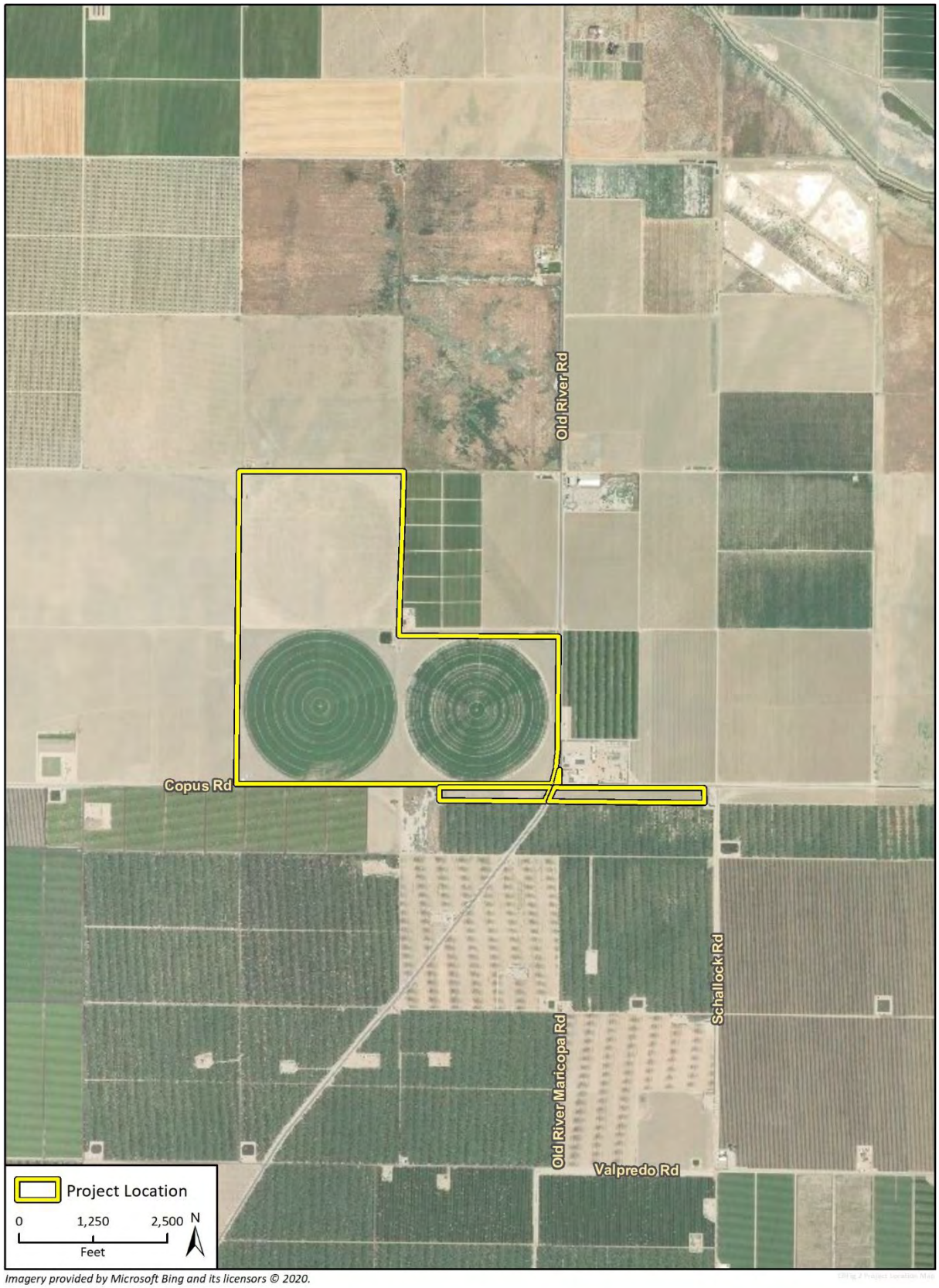
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Courtney Montgomery, M.A.
Archaeologist

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www.rinconconsultants.com

November 6, 2020

Mona Tucker, Chairperson
yak tityu tityu yak tiłhini – Northern Chumash Tribe
660 Camino Del Rey
Arroyo Grande, California 93420

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Tucker:

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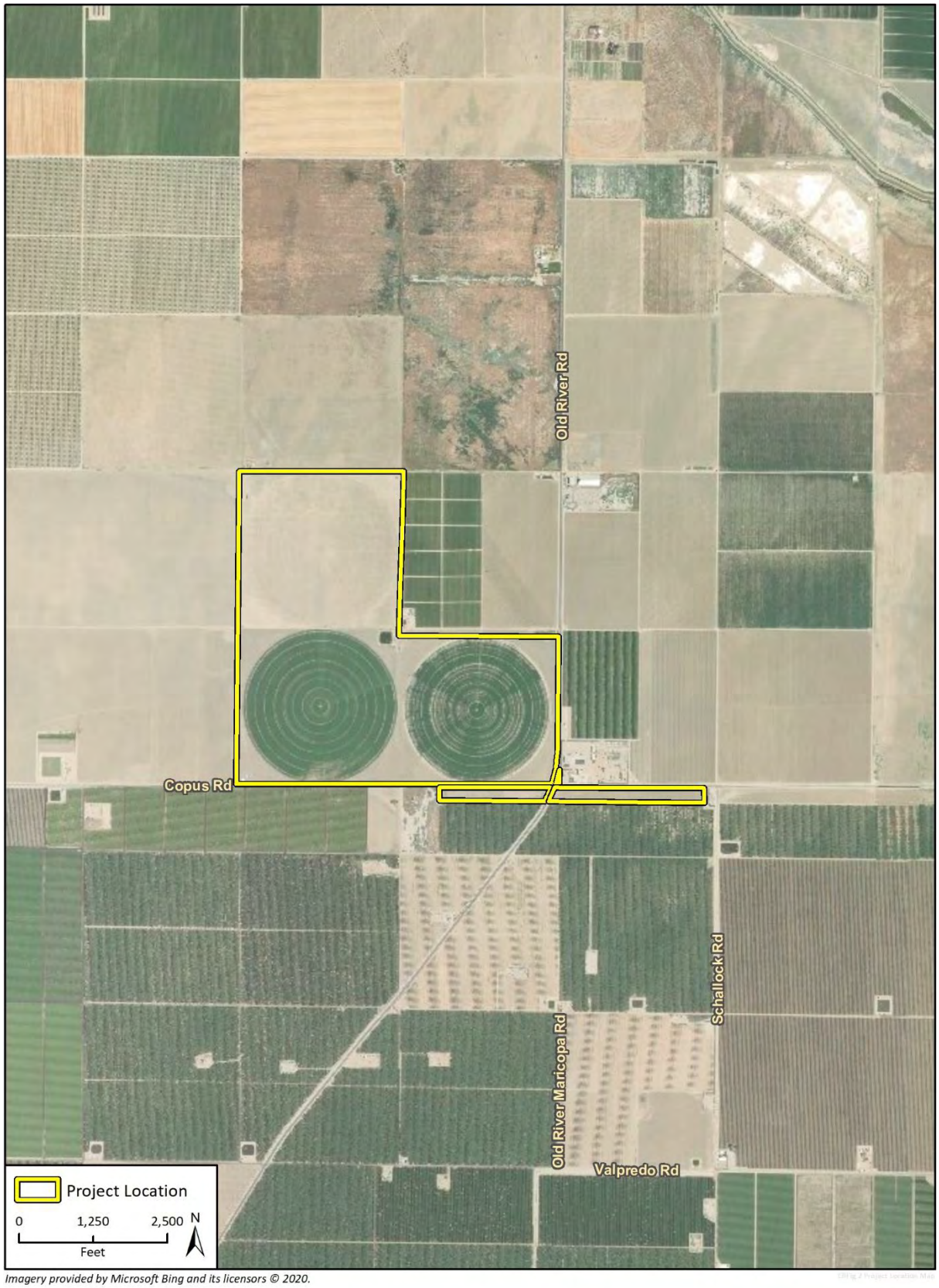
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November 6, 2020

Julie Turner, Secretary
Kern Valley Indian Community
P.O. Box 1010
Lake Isabella, California 93240

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Ms. Turner:

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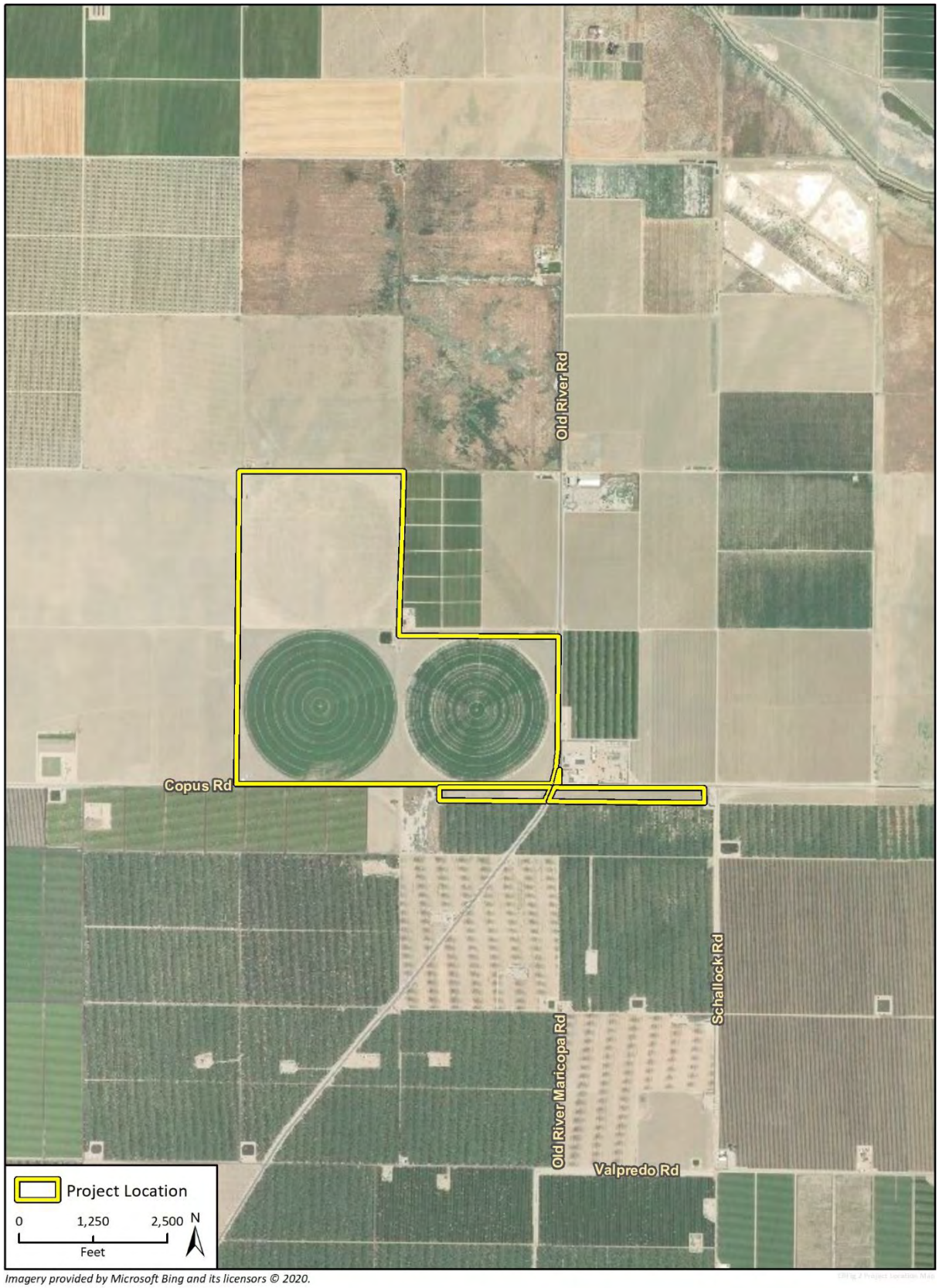
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Courtney Montgomery, M.A.
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November 6, 2020

Kenneth Woodrow, Chairperson
Wuksache Indian Tribe/ Eshom Valley Band
1179 Rock Haven Ct.
Salinas, California 93906

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Woodrow:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

A proposed undertaking location map is enclosed with this letter for your reference. Due to the circumstances surrounding COVID-19, we are submitting this letter digitally and will not be sending hard copies via U.S. mail.

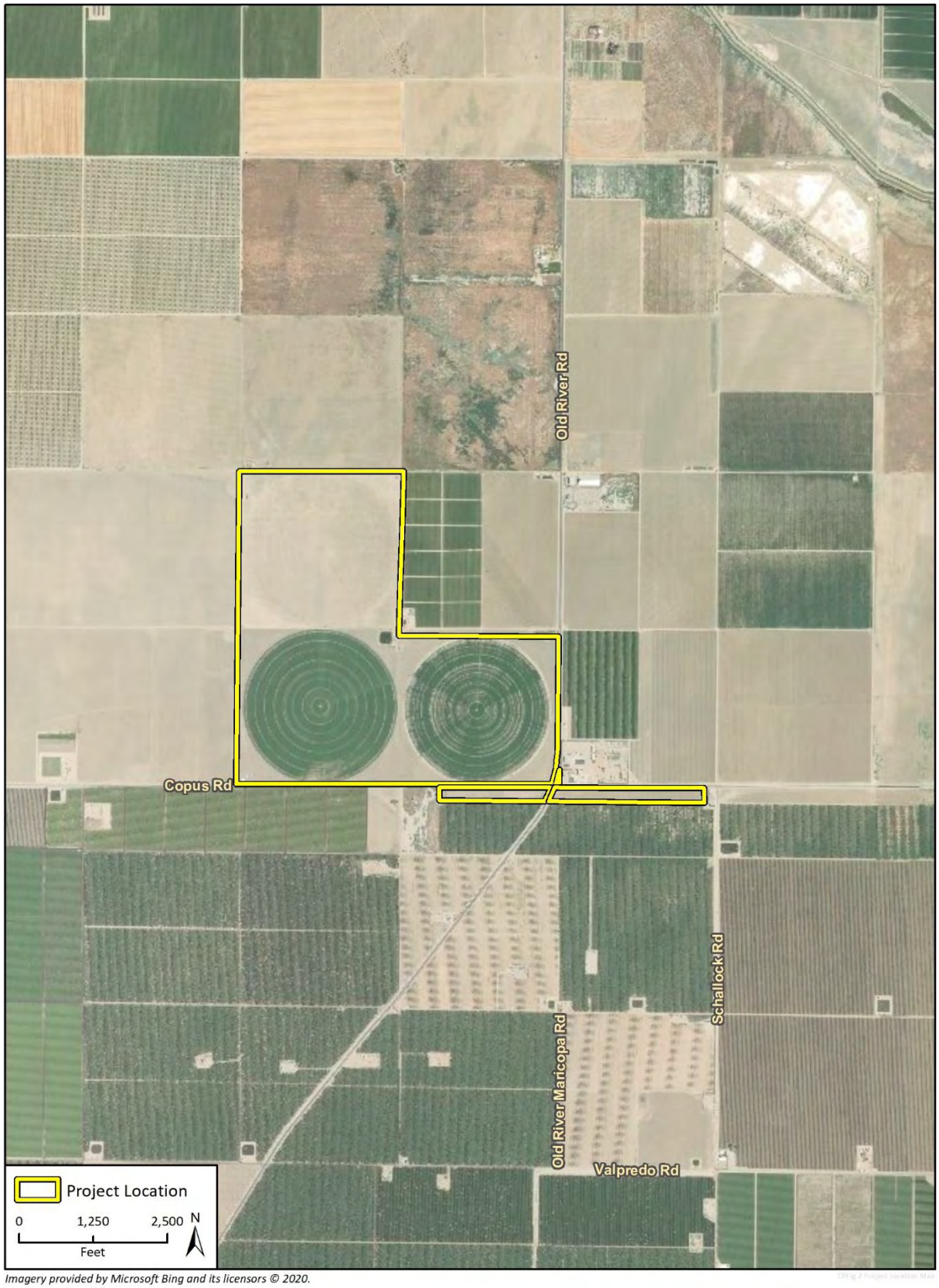
If you have knowledge of cultural resources that may exist within or near the proposed undertaking that you wish to be documented in our report, please contact me at (559) 228-9925 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Rincon Consultants, Inc.

7080 N, Whitney Ave., Suite 101
Fresno, California 93720

559 228 9925 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

November 6, 2020

Donna Yocum, Chairperson
San Fernando Band of Mission Indians
P.O. Box 221838
Newhall, California 91322

Subject: **Cultural Resources Study for the Jasmine Solar Project, Bakersfield, Kern County, California**

Dear Chairperson Yocum:

Rincon Consultants, Inc. (Rincon) has been retained by Idemitsu Renewables to conduct a Cultural Resources Study for the Jasmine Solar Project (project), near the intersection of Corpus Road and Old River Road within the city of Bakersfield, Kern County, California. The project is a 70-megawatt utility-scale solar project paired with energy storage that will interconnect at PG&E's Lakeview Substation via a 0.5-mile generation-tie line. The project includes the approximately 520-acre project site and an approximately 0.5-mile generation tie-in corridor. This project is subject to the California Environmental Quality Act (CEQA) with the Kern County serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. Any AB 52 consultation will be carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on October 20, 2020, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive tribal heritage resources within or near the proposed undertaking. On November 5, 2020, Rincon received a response from the NAHC stating that the SLF search results were negative for site specific information regarding tribal heritage resources. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the proposed undertaking.

A proposed undertaking location map is enclosed with this letter for your reference. Due to the circumstances surrounding COVID-19, we are submitting this letter digitally and will not be sending hard copies via U.S. mail.

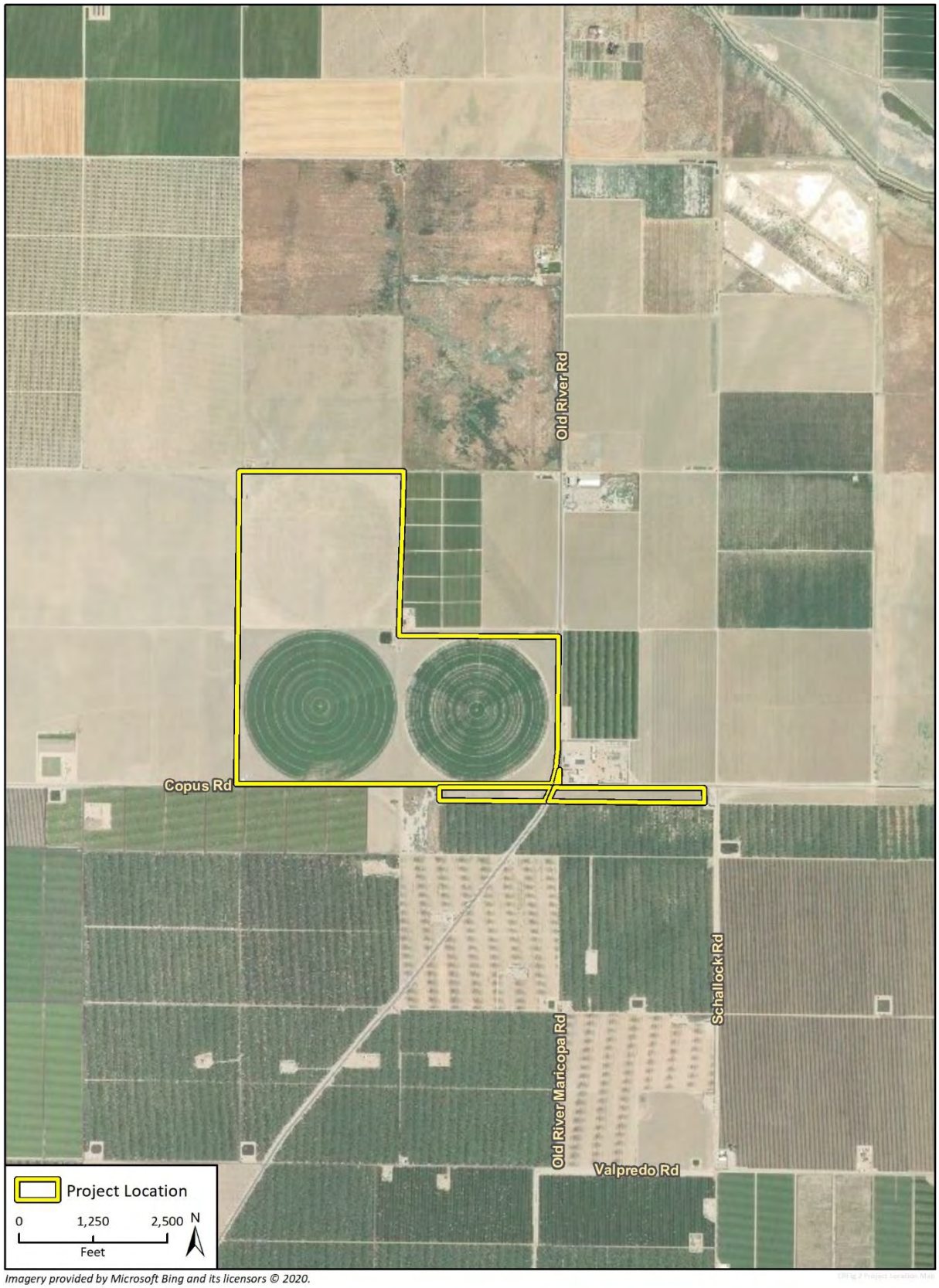
If you have knowledge of cultural resources that may exist within or near the proposed undertaking that you wish to be documented in our report, please contact me at (559) 228-9925 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.



Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



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Courtney Montgomery

From: Microsoft Outlook
To: chumashtribe@sbcglobal.net
Sent: Friday, November 6, 2020 2:11 PM
Subject: Undeliverable: RE: Jasmine Solar Project

flpd599.prodigy.net rejected your message to the following email addresses:

chumashtribe@sbcglobal.net (chumashtribe@sbcglobal.net)
There's a problem with the recipient's mailbox. Please try resending your message. If the problem continues, please contact your email admin.

flpd599.prodigy.net gave this error:
<chumashtribe@sbcglobal.net>... Addressee unknown, relay=[40.107.243.87]

Diagnostic information for administrators:

Generating server: BYAPR12MB3607.namprd12.prod.outlook.com
Total retry attempts: 1

chumashtribe@sbcglobal.net
flpd599.prodigy.net
Remote Server returned '550 5.2.1 <chumashtribe@sbcglobal.net>... Addressee unknown, relay=[40.107.243.87]'

Original message headers:


```
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ARC-Message-Signature: i=1; a=rsa-sha256; c=relaxed/relaxed; d=microsoft.com;
 s=arcselector9901;
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ARC-Authentication-Results: i=1; mx.microsoft.com 1; spf=pass
 smtp.mailfrom=rinconconsultants.com; dmarc=pass action=none
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 arc=none
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 s=selector1;
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 22:11:08 +0000
From: Courtney Montgomery <cmontgomery@rinconconsultants.com>
To: "chumashtribe@sbcglobal.net" <chumashtribe@sbcglobal.net>
Subject: RE: Jasmine Solar Project
Thread-Topic: Jasmine Solar Project
Thread-Index: Ada0iSTmGpkLVD7LSZew1E9G6yBO/AAAIc/g
Date: Fri, 6 Nov 2020 22:11:08 +0000
Message-ID:
<BY5PR12MB4113971D8AF88D9903F80BEAA6ED0@BY5PR12MB4113.namprd12.prod.outlook.com>
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Accept-Language: en-US
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X-MS-TNEF-Correlator:
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X-MS-Exchange-Transport-CrossTenantHeadersStamped: BYAPR12MB3607

Courtney Montgomery

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Friday, November 6, 2020 2:35 PM
To: Courtney Montgomery
Subject: [EXT] Re: Jasmine Solar Project

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Hello Courtney,

On behalf of the Tribal Historic and Cultural Preservation Department of the Fernandeño Tataviam Band of Mission Indians (FTBMI), thank you for the formal notification letter and opportunity to comment on the proposed Jasmine Solar Project. This project is situated outside the FTBMI's ancestral Tribal boundaries. The FTBMI would like to defer consultation for this project to local tribes.

Best,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Courtney Montgomery <cmontgomery@rinconconsultants.com>
Sent: Friday, November 6, 2020 1:56 PM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Subject: Jasmine Solar Project

[CAUTION] EXTERNAL Email. Exercise caution.

Hello,

Please see the attached letter regarding the Jasmine Solar Project. Feel free to reach out to the listed contact with any information.

Courtney Montgomery, MA
Archaeologist
Rincon Consultants, Inc.
Environmental Scientists | Planners | Engineers
805-644-4455 x3005
559-558-5875 Direct
209-662-3807 Mobile

rinconconsultants.com



RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com


Please consider the environment before printing this email.

Out of Office Alert **– I will be out of the office from November 9 to November 12, returning November 13.**

Courtney Montgomery

From: Ryan Nordness <Ryan.Nordness@sanmanuel-nsn.gov>
Sent: Friday, November 6, 2020 3:56 PM
To: Courtney Montgomery
Cc: Jessica Mauck
Subject: [EXT] RE: Jasmine Solar Project, Bakersfield, Kern County

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Dear Courtney Montgomery,

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above-referenced project. SMBMI appreciates the opportunity to review the project documentation, which was received by the Cultural Resources Management Department on November 6, 2020. The proposed project is located outside of Serrano ancestral territory and, as such, SMBMI will not be requesting to receive consulting party status with the lead agency or to participate in the scoping, development, or review of documents created pursuant to legal and regulatory mandates.

Kind regards,
Ryan Nordness
Cultural Resource Analyst
San Manuel Band of Mission Indians

Ryan Nordness
CULTURAL RESOURCE ANALYST
O: (909) 864-5050 x50-2022
Internal: 50-2022
M: 909-838-4053
26569 Community Center Dr Highland CA 92346
SAN MANUEL
BAND OF MISSION INDIANS

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. If the reader of this message is not the intended recipient or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination or copying of this communication is strictly prohibited. If you have received this electronic transmission in error, please delete it from your system without copying it and notify the sender by reply e-mail so that the email address record can be corrected. Thank You

Jasmine Solar Project
Kern County, California
Rincon Project No: 20-09824

Native American Contacts Consulted

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
Big Pine Paiute Tribe of the Owens Valley James Rambeau, Sr., Chairperson P.O. Box 700 Big Pine, California 93513 Via email: j.rambeau@bigpinepaiute.org Phone (760) 938-2003 Fax (976) 938-2942	**11/06/2020:** Emailed letter	
Big Pine Paiute Tribe of the Owens Valley Sally Manning, Environmental Director P.O. Box 700 Big Pine, California 93513 Via email: s.manning@bigpinepaiute.org Phone (760) 938-2003 Fax (976) 938-2942	**11/06/2020:** Emailed letter	
Big Pine Paiute Tribe of the Owens Valley Danelle Gutierrez, THPO P.O. Box 700 Big Pine, California 93513 Via email: d.gutierrez@bigpinepaiute.org Phone (760) 938-2003 ext 228 Fax (976) 938-2942	**11/06/2020:** Emailed letter	
Chumash Council of Bakersfield Julio Quair, Chairperson 729 Texas Street Bakersfield, California 93307 chumashtribe@sbcglobal.net Phone: (661) 322 - 0121	**11/06/2020:** Emailed letter. Email returned as undeliverable, issue with recipient's address. Called listed number, no answer and not able to leave a voicemail.	
Coastal Band of the Chumash Nation Mariza Sullivan, Chairperson P. O. Box 4464 Santa Barbara, California 93140 cbcntribalchair@gmail.com Phone: (805) 665 - 0486	**11/06/2020:** Emailed letter	
Fernandeo Tataviam Band of Mission Indians Jairo F. Avila, THPO 1019 Section Street, Suite 1 San Fernando, California 91340 Via email: Jairo.avila@tatviam-nsn.us Phone: (818) 837-0794 Fax: (818) 837-0796	**11/06/2020:** Emailed letter	**11/06/2020:** Mr. Avila responded via email stating that the FTBMI defers consultation for the project to local tribes.

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
Kern Valley Indian Community Julie Turner, Secretary P.O. Box 1010 Lake Isabella, California 93240 Phone (661) 340-0032 Email: meindiangirl65@gmail.com	**11/06/2020:** Emailed letter	
Kern Valley Indian Community Robert Robinson, Chairperson P.O. Box 1010 Lake Isabella, California 93240 Via email: bbutterbredt@gmail.com Phone (760) 378-2915	**11/06/2020:** Emailed letter	
Kern Valley Indian Community Brandy Kendricks 30741 Foxridge Court Tehachapi, California 93561 Via email: krazykendricks@hotmail.com Phone: (661) 821-1733 Fax (661) 972-0445	**11/06/2020:** Emailed letter	
Kitanemuk & Yowlumne Tejon Indians Delia Dominguez, Chairperson 115 Radio Street Bakersfield, California 93305 Via email: 2deedominguez@gmail.com Phone (626) 339-6785	**11/06/2020:** Emailed letter	
San Fernando Band of Mission Indians Donna Yocum, Chairperson P.O. Box 221838 Newhall, CA, 91322 Via email: ddyocum@comcast.net Phone: (503) 539 - 0933 Fax: (503) 574-3308	**11/06/2020:** Emailed letter	
San Manuel Band of Mission Indians Jessica Mauck, Director of Cultural Resources 26569 Community Center Drive Highland, CA 92346 Via email: jmauck@sanmanuel-nsn.gov	**11/06/2020:** Emailed letter	**11/06/2020:** Ryan Nordness, Cultural Resource Analyst for the San Manuel Band of Mission Indians (SMBMI), responded via email stating that the project is located outside of Serrano ancestral territory and the SMBMI will not be requesting to comment or review the project.
Santa Rosa Rancheria Tachi Yokut Tribe Leo Sisco Chairperson P.O. Box 8 Lemoore, CA 93245 559-924-1278	**11/06/2020:** Called number for email address, no answer. Faxed letter	

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
Tejon Indian Tribe Octavio Escobedo III, Chairperson P.O. Box 640 Arvin, California 93203 Via email: oescobedo@tejonindiantribe-nsn.gov Phone (661) 834-8566	**11/06/2020:** Emailed letter	
Tejon Indian Tribe Colin Rambo, CRM Tech P.O. Box 640 Arvin, California 93203 Via email: colin.rambo@tejonindiantribe-nsn.gov Phone (661) 834-8566 Cell (484) 515-4790	**11/06/2020:** Emailed letter	
Tübatulabals of Kern Robert L. Gomez Jr., Tribal Chairperson P.O. Box 226 Lake Isabella, California 93240 Via email: rgomez@tubatulabal.org Phone ~~(760) 379-4590~~ (661) 889-2239 Fax (760) 379-4592	**11/06/2020:** Emailed letter	
Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, California 93258 Via email: neil.peyron@tulerivertribe-nsn.gov Phone (559) 781-4271 Fax (559) 781-4610	**11/06/2020:** Emailed letter	
Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas, California 93906 Via email: kwood8934@aol.com Phone (831) 443-9702	**11/06/2020:** Emailed letter	
yak tityu tityu yak tiłhini – Northern Chumash Tribe Mona Tucker, Chairperson 660 Camino Del Rey Arroyo Grande, CA, 93420 Via email: olivas.mona@gmail.com Phone: (805) 748 - 2121	**11/06/2020:** Emailed letter	

Appendix C

Department of Parks and Recreation 523 Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** JAS-S-001

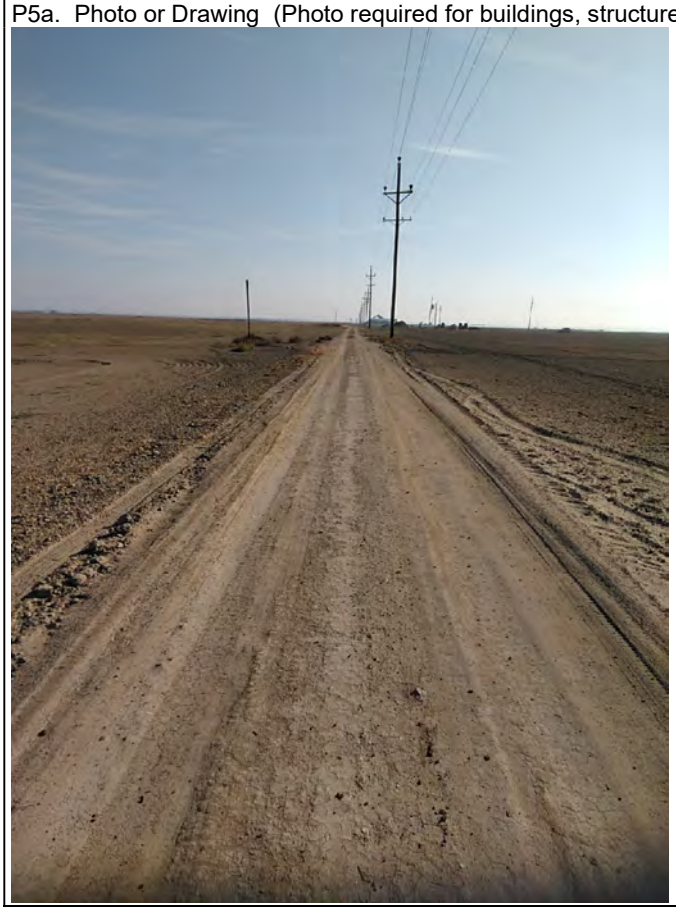
P1. Other Identifier:
***P2. Location:** ■ **Not for Publication** ☐ **Unrestricted** ***a. County:** Kern
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Coal Oil Canyon & Conner SW* **Date:** 1955 **T** 32S; **R** 26E; NE ¼ **of** NW ¼ **of Sec** 36**;** M.D. **B.M.**
c. Address: N/A City: Bakersfield Zip: 93313
d. UTM: (NAD83) Zone: 11N; 306422 **mE**/ 3887191 **mN** (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 372 feet

***P3a. Description:**

JAS-S-001 is an approximately 0.5-mile long segment of a historic-age, unpaved, unnamed dirt road that generally trends east-west off Old River Road, approximately 1 mile north of the intersection of Copus Road and Old River Road, southwest of Bakersfield in Kern County, California. The segment of the road that was recorded measures 7.5 feet wide with no discernable berm on either side**Error! Reference source not found.**.

***P3b. Resource Attributes:** AH7 (Roads/trails/railroad grades)
***P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ■Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)
Overview of road, facing east, November 2020.

***P6. Date Constructed/Age and Sources:** ■Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**
Unknown

***P8. Recorded by:**
Montgomery, C. et al. 2020
Rincon Consultants, Inc.
180 N. Ashwood Ave
Ventura, CA 93003

***P9. Date Recorded:** 11/20/2020

***P10. Survey Type:** Pedestrian

***P11. Report Citation:**
Rincon Consultants, Inc. 2020 Jasmine Solar Cultural Resources Assessment Report, Kern County, California. Rincon Consultants Project No. 20-09824. Report on file at the Southern San Joaquin Information Center, Bakersfield State University, California

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) JAS-S-001

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Unpaved road
B4. Present Use: Unpaved road

***B5. Architectural Style:** N/A

***B6. Construction History:** (Construction date, alterations, and date of alterations)
Developed by 1931 based on USGS topographic maps (USGS 1931).

***B7. Moved?** ☐No ☐Yes ■Unknown **Date:** **Original Location:**

***B8. Related Features:**
No berms, vegetation or features visible on the recorded segment.

B9a. Architect: N/A
b. Builder: Unknown

***B10. Significance: Theme:** N/A
Area:
Period of Significance: **Property Type:** **Applicable Criteria:**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Resource JAS-S-001 is a segment of a historic-age, unnamed, unpaved dirt road that generally trends east-west off Old River Road. Rincon inspected the approximately 0.5-mile long road segment during a pedestrian survey completed for the Jasmine Solar Cultural Resources Assessment. The unpaved road is first depicted on the 1931 *Hayes Ranch* Quadrangle topographic map. Surrounding land to the northwest was labeled “Hayes Ranch” throughout the 1930s and 1940s, thus, it is possible the unpaved road was utilized by the ranch (USGS 1931 and 1947). No buildings or structures were depicted in the vicinity of the road. By the 1950s, the subject road appears to have served to access a water reservoir and a handful of structures (which are no longer extant). Additional unpaved roads were developed by that time, branching off Copus Road to the north and traversing the agricultural land (USGS 1956). The road appears largely the same through present day (Environmental Data Resources, Inc. 2020; Google Earth). The subject road appears to have served the local property owner(s) to access agricultural infrastructure. No additional consequential information was found on property owners in the area of the subject road, based on available data.

The road appears to have locally served property owners to access their agricultural infrastructure. Archival research did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, it does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
Environmental Data Resources Inc. 2020. The EDR Aerial Photo Decade Package for Jasmine Solar Project, November 5.
Google Earth. Imagery of project site and vicinity.
USGS. 1931. *Hayes Ranch* Quadrangle Map.
1947. *Hayes Ranch* Quadrangle Map
1956. *Conner SW* quadrangle Map. Accessed 11/23/2020 at https://ngmdb.usgs.gov/topoview/viewer

B13. Remarks:

***B14. Evaluator:** S. Zamudio-Gurrola, Rincon Consultants
***Date of Evaluation:** November 23, 2020

(Sketch Map with north arrow required.)

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **LOCATION MAP**	Primary # HRI# Trinomial

 ***Resource Name or #:** JAS-S-001

***Map Name:** *Coal Oil Canyon* and *Conner SW* quadrangles ***Scale:** 1:2400 ***Date of Map:** 1955



 *Required information

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**
LINEAR FEATURE RECORD
Trinomial

 ***Resource Name or #:** JAS-S-001

L1. Historic and/or Common Name: Unknown

L2a. Portion Described: ☐ Entire Resource ■ Segment ☐ Point Observation Designation:
b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)

Rincon inspected a segment of the unpaved road during a pedestrian survey completed for the Jasmine Solar Cultural Resources Assessment. This approximately 0.5-mile segment spans from UTM Zone 11N; 306078mE, 3887195mN to UTM Zone 11N; 306915mE, 3887181mN. The linear feature extends beyond the survey corridor but its entire length is not known.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The linear feature is an approximately 0.5-mile segment of an unnamed, unpaved dirt road off Old River Road, approximately one mile north of the intersection of Copus Road and Old River Road, southwest of Bakersfield in Kern County, California. The road generally trends east-west. The recorded road segment is 7.5 feet wide with no discernable berm on either side or visible vegetation.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
a. Top Width: 7.5 feet
b. Bottom Width: 7.5 feet
c. Height or Depth: none
d. Length of Segment: approx. 0.5 Miles

L4e. Sketch of Cross-Section **(include scale)** Facing:

L5. Associated Resources:

L6. Setting: The road runs East-West through a flat, sandy, alluvial plain bounded by agricultural lands to the north, south, and Old River Road to the east. Exposure is 360 degrees. Soil is a light brown, poorly sorted medium to fine grained sand. Ground visibility is 100%.

L7. Integrity Considerations:

L8a. Photograph, Map or Drawing

See Location Map on page 3.

L8b. Description of Photo, Map, or Drawing: (View, scale, etc.)
See photo on page 1 and location map on page 2.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)
C. Montgomery, Rincon Consultants, Inc.

L11. Date: 11/13/2020

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

 *Resource Name or #: JAS-S-002

P1. Other Identifier:
***P2. Location:** ■ **Not for Publication** ☐ **Unrestricted** ***a. County:** Kern
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Conner SW* **Date:** 1955 **T** 32S; **R** 26E; NE ¼ **of** SW ¼ **of Sec** 36**;** M.D. **B.M.**
c. Address: N/A City: Bakersfield Zip: 93313
d. UTM: (NAD83) Zone: 11N; 306063 **mE**/ 3886389 **mN** (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 365 feet

***P3a. Description:**

JAS-S-002 is an approximately one-mile long unnamed, unpaved dirt road that generally trends north-south off Copus Road. It is located approximately one mile west of the intersection of Copus Road and Old River Road, southwest of Bakersfield in Kern County, California. The road measures 10 feet wide, with a discernable berm on the west side of the road along the northern portion but not the southern portion of the road.

***P3b. Resource Attributes:** AH7 (Roads/trails/railroad grades)
***P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ■Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)
Overview of road, facing south, November 2020.

***P6. Date Constructed/Age and Sources:** ■Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**
Unknown

***P8. Recorded by:**
Montgomery, C. et al. 2020
Rincon Consultants, Inc.
180 N. Ashwood Ave
Ventura, CA 93003

***P9. Date Recorded:** 11/20/2020

***P10. Survey Type:** Pedestrian

***P11. Report Citation:** Rincon Consultants, Inc. 2020 Jasmine Solar Cultural Resources Assessment Report, Kern County, California. Rincon Consultants Project No. 20-09824. Report on file at the Southern San Joaquin Information Center, Bakersfield State University, California

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) JAS-S-002

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Unpaved road
B4. Present Use: Unpaved road

***B5. Architectural Style:** N/A

***B6. Construction History:** (Construction date, alterations, and date of alterations)
Developed by 1946 based on aerial photographs (Environmental Data Resources, Inc. 2020).

***B7. Moved?** ☐No ☐Yes ■Unknown **Date:** **Original Location:**

***B8. Related Features:**
Two-foot berm on the west side of the road along the northern portion of the road.

B9a. Architect: N/A
b. Builder: Unknown

***B10. Significance: Theme:** N/A
Area:
Period of Significance: **Property Type:** **Applicable Criteria:**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Resource JAS-S-002 is a historic-age, unpaved, unnamed dirt road that generally trends north-south off Copus Road, approximately 1 mile west of the Copus Road and Old River Road intersection. Rincon inspected the road segment during a pedestrian survey completed for the Jasmine Solar Cultural Resources Assessment. The unpaved road is first observed on a 1946 aerial photograph (Environmental Data Resources Inc. 2020). At the time, a water reservoir was located near the road's intersection with Copus Road. In the 1950s, the road provided access from Copus Road to a water reservoir and a handful of structures. (These structures appear to no longer be extant). The road appears largely unchanged through present day (Environmental Data Resources, Inc. 2020). The subject road appears to have served the local property owner(s) to access agricultural infrastructure. No additional consequential information was found on property owners in the area of the subject road, based on available data. Archival research did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, it does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
Environmental Data Resources Inc. 2020. The EDR Aerial Photo Decade Package for Jasmine Solar Project, November 5.

Google Earth. Imagery of project site and vicinity.

B13. Remarks:

***B14. Evaluator:** S. Zamudio-Gurrola, Rincon Consultants

***Date of Evaluation:** November 23, 2020

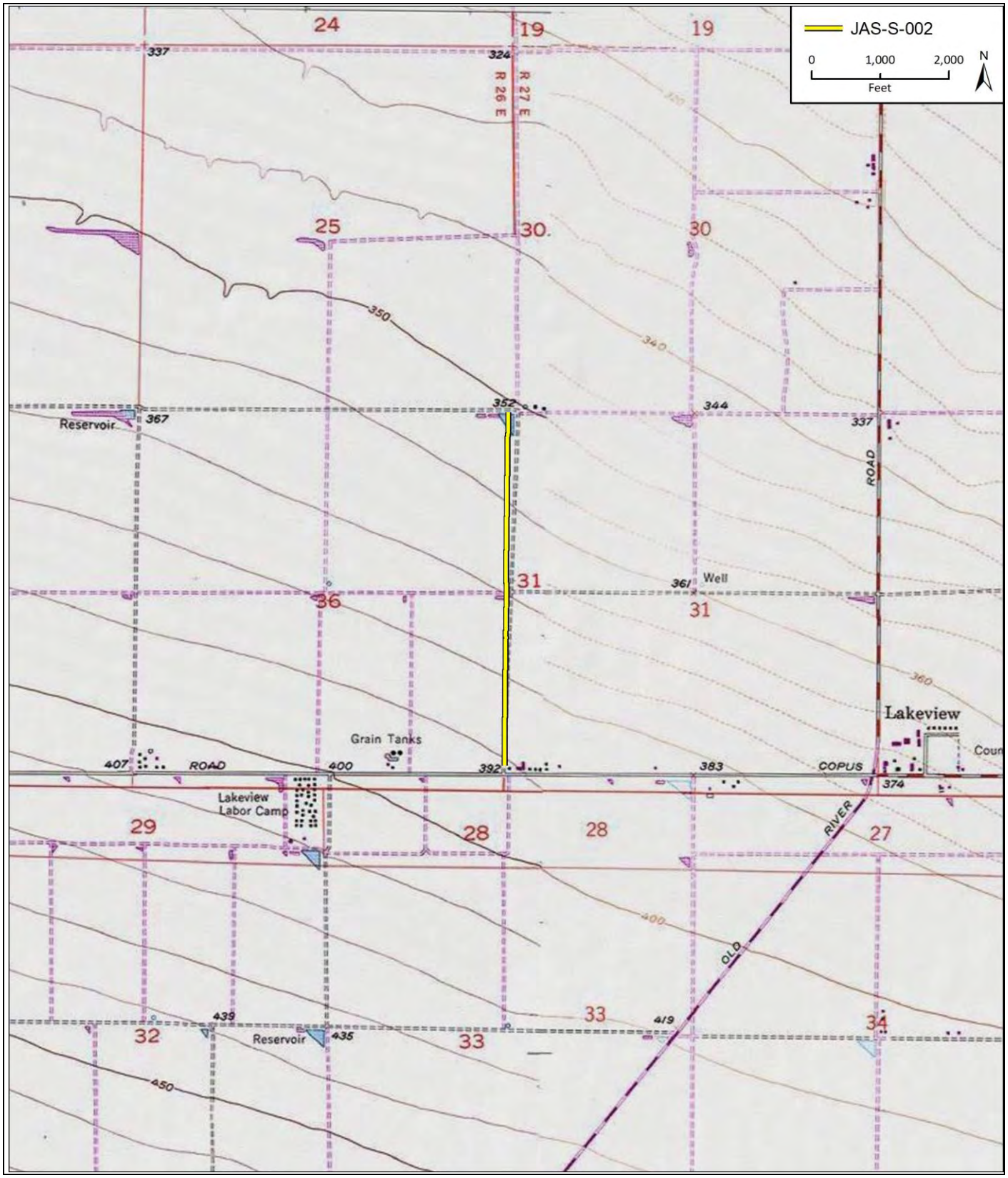
(This space reserved for official comments.)

(Sketch Map with north arrow required.)

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION	Primary # HRI#
LOCATION MAP	Trinomial

Page 3 **of** 4 ***Resource Name or #:** JAS-S-002

***Map Name:** *Conners SW* Quadrangle ***Scale:** 1:24,000 ***Date of Map:** 1956



DPR 523J (1/95) *Required information

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**
LINEAR FEATURE RECORD **Trinomial**

 ***Resource Name or #:** JAS-S-002

L1. Historic and/or Common Name: Unknown

L2a. Portion Described: ☐ Entire Resource ■ Segment ☐ Point Observation Designation:
b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)
Rincon studied the linear feature (road) during the current survey, from UTM Zone 11N; 306078mE, 3887195mN to UTM Zone 11N; 306046mE, 3885609mN.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The feature is an approximately one-mile long, unnamed, unpaved dirt road which begins at Copus Road and spans to the north. The road is located approximately one mile west of the Copus Road and Old River Road intersection, southwest of Bakersfield in Kern County, California. The road is 10 feet wide, with no discernable berm on either side of the southern segment, and a two-foot berm on the west side of the road along the northern segment. There is minimal dried shrub vegetation along the road berm and within the road.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
a. Top Width: 10 feet
b. Bottom Width: 10 feet
c. Height or Depth: 2 feet (berm)
d. Length of Segment: 1 mile

L4e. Sketch of Cross-Section **(include scale)** Facing:

L5. Associated Resources:

L6. Setting: The road runs north-south through a flat, sandy, alluvial plain bounded by agricultural lands to the north, east, west, and Copus Road to the south. Exposure is 360 degrees. Soil is a light brown, poorly sorted medium to fine grained sand. Ground visibility is 100%.

L7. Integrity Considerations:

L8a. Photograph, Map or Drawing

See location map on page 3.

L8b. Description of Photo, Map, or Drawing: (View, scale, etc.)

See photo on page 1 and location map on page 2.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)
C. Montgomery

L11. Date: 11/13/2020

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

 *Resource Name or #: JAS-S-003

P1. Other Identifier:
***P2. Location:** ■ **Not for Publication** ☐ **Unrestricted** ***a. County:** Kern
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Coal Oil Canyon* and *Conner SW* **Date:** 1955 **T** 32S; **R** 27E; SW ¼ **of** NW ¼ **of Sec** 31**;** M.D. **B.M.**
c. Address: N/A City: Bakersfield Zip: 93313
d. UTM: (NAD83) Zone: 11N; 306484 **mE**/ 3886386 **mN** (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 355 feet

***P3a. Description:**

JAS-S-003 is an approximately 0.5-mile long segment of a historic-age, unnamed, unpaved dirt road that generally trends east-west and is located approximately 0.7 mile northwest of the intersection of Copus and Old River roads, outside of Bakersfield, Kern County, California. (In its entirety, the road appears to be one-mile long and is accessible via Old River Road). The segment of the road that was recorded measures 7.5 feet wide, with no discernable berm on either side.

***P3b. Resource Attributes:** AH7 (Roads/trails/railroad grades)
***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)
Overview of road, facing east

***P6. Date Constructed/Age and Sources:** ■Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**
Unknown

***P8. Recorded by:**
C. Montgomery et al. 2020
Rincon Consultants, Inc.
180 N. Ashwood
Ventura, CA 93003

***P9. Date Recorded:** 11/11/2020

***P10. Survey Type:** Pedestrian

***P11. Report Citation:**
Rincon Consultants, Inc. 2020 Jasmine Solar Cultural Resources Assessment Report, Kern County, California. Rincon Consultants Project No. 20-09824. Report on file at the Southern San Joaquin Information Center, Bakersfield State University, California

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) JAS-S-003

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Unpaved road
B4. Present Use: Unpaved road

***B5. Architectural Style:** N/A

***B6. Construction History:** (Construction date, alterations, and date of alterations)
Developed by 1956 based on aerial photographs and USGS topographic maps (Environmental Data Resources Inc. 2020; USGS 1956a and 1956b).

***B7. Moved?** ☐No ☐Yes ■Unknown **Date:** **Original Location:**

***B8. Related Features:**
No discernable berms or features.

B9a. Architect: N/A
b. Builder: Unknown

***B10. Significance: Theme:** N/A
Area:
Period of Significance: **Property Type:** **Applicable Criteria:**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Resource JAS-S-003 is a segment of a historic-age, unnamed, unpaved dirt road that generally trends east-west approximately 0.5 miles north of Copus Road. The road is first observed on an aerial photograph and USGS topographic maps dating to 1956, and at the time it provided access to at least one well located slightly west of Old River Road. The road appears to have remained largely unchanged through present day (Environmental Data Resources Inc. 2020; USGS 1956a and 1956b).

The unnamed dirt road appears to have locally served property owners to access agricultural infrastructure. Archival research did not demonstrate the road is associated with events that have made a significant contribution to broad patterns of national, state or local history (Criteria A/1), nor is it known to be associated with the lives of significant persons in our past (Criteria B/2). The road is an unpaved dirt road, a utilitarian and ubiquitous feature in the largely agricultural area, and thus does not embody distinctive characteristics of a type, period, or method of construction. It does not exhibit significant engineering or materials. Therefore, it does not appear eligible under Criteria C/3. A review of available evidence and records search results did not indicate the property may yield important information about prehistory or history (Criteria D/4). Thus, the road is recommended ineligible for listing in the NRHP and CRHR under all criteria.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
Environmental Data Resources Inc. 2020. The EDR Aerial Photo Decade Package for Jasmine Solar Project, November 5.
USGS. 1956. *Coal Oil Canyon* Quadrangle Map.
1956. *Conner SW* Quadrangle Map. Accessed 11/23/2020 at https://ngmdb.usgs.gov/topoview/viewer

B13. Remarks:

***B14. Evaluator:** Susan Zamudio-Gurrola, Rincon Consultants
***Date of Evaluation:** November 23, 2020

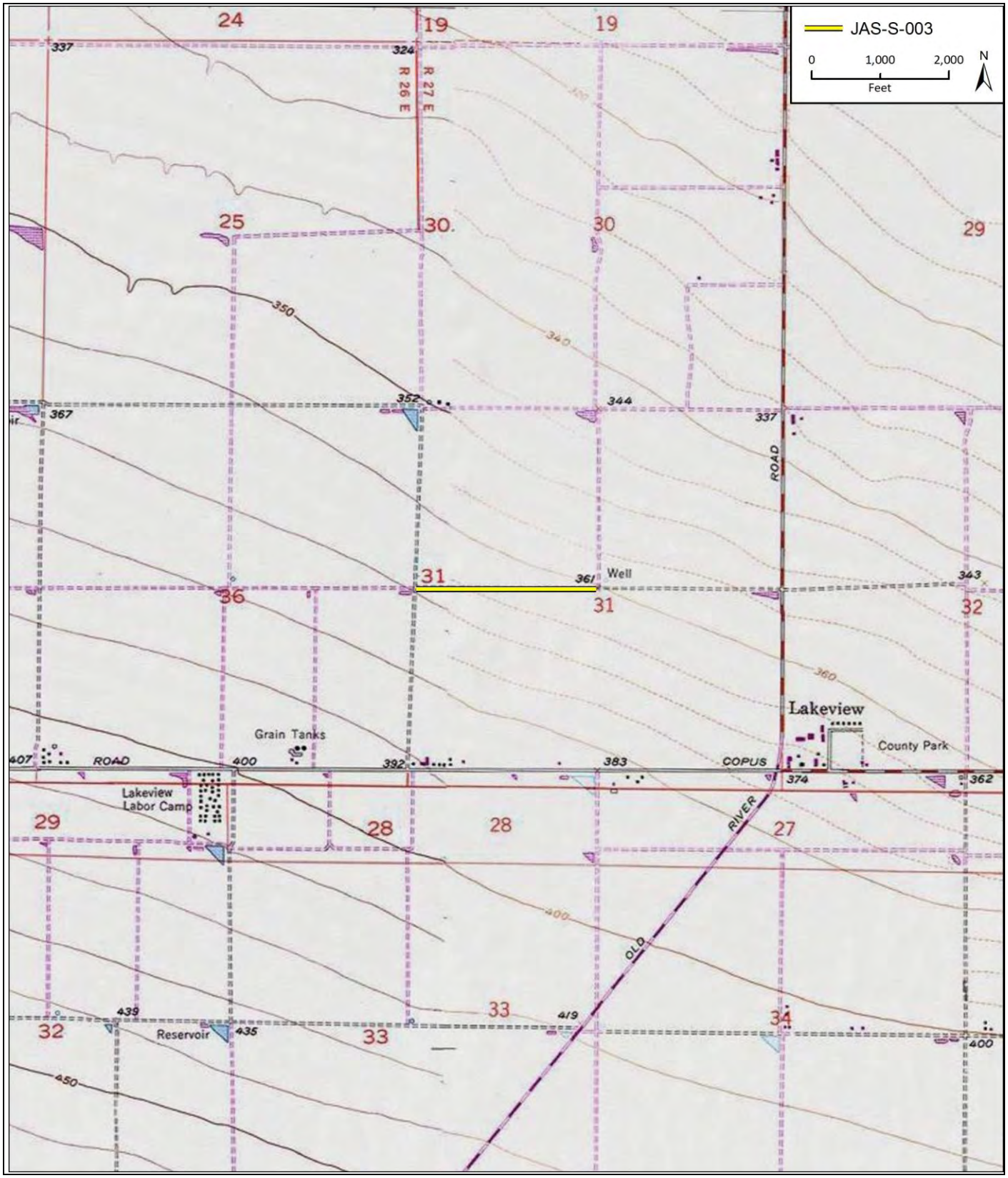
(This space reserved for official comments.)

(Sketch Map with north arrow required.)

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION	Primary # HRI#
LOCATION MAP	Trinomial

Page 3 **of** 4 ***Resource Name or #:** JAS-S-003

***Map Name:** *Coal Oil Canyon & Conner SW* ***Scale:** 1:2400 ***Date of Map:** 1955



DPR 523J (1/95) ***Required information**

L1. Historic and/or Common Name: Unknown

L2a. Portion Described: ☐ Entire Resource ■ Segment ☐ Point Observation Designation:

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)

Rincon studied a segment of the linear resource (road) during the current survey, from UTM Zone 11N; 306063mE, 3886389mN to UTM Zone 11N; 306894mE, 3886377mN.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

The feature is an approximately 0.5-mile segment of an unnamed, unpaved dirt road located approximately 0.7 mile northwest of the intersection of Copus Road and Old River Road, southwest of the city of Bakersfield in Kern County, California. The segment recorded is 7.5 feet wide, with no discernable berm on either side. In its entirety, the road begins at Old River Road and spans west for approximately one mile.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width: 7.5 feet
b. Bottom Width: 7.5 feet
c. Height or Depth: none
d. Length of Segment: 0.5 mile

L4e. Sketch of Cross-Section **(include scale)** Facing:

L5. Associated Resources:

L6. Setting: The road runs East-West through a flat, sandy, alluvial plain bounded by agricultural lands to the north, south, west, and Old River Road to the east. Exposure is 360 degrees. Soil is a light brown, poorly sorted medium to fine grained sand. Ground visibility is 100%.

L7. Integrity Considerations:

L8a. Photograph, Map or Drawing

See location map on page 3.

L8b. Description of Photo, Map, or Drawing: (View, scale, etc.)

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)
C. Montgomery

L11. Date: 11/13/2020