JVR Energy Park
Project Description

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ACRONYMS

Acronym	Definition
AC	alternating current
AF	acre-feet
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
APN	Assessor's Parcel Number
Applicant	JVR Energy Park, LLC
BLM	Bureau of Land Management
County	San Diego County
DC	direct current
FAA	Federal Aviation Administration
I-	Interstate
kV	kilovolt
MUP	Major Use Permit
MW	megawatts
O&M	Operations and Maintenance
PV	photovoltaic
ROW	Right-of-way
SCADA	supervisory control and data acquisition
SDG&E	San Diego Gas and Electric
U.S.	United States
USDA	United States Department of Agriculture

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CHAPTER 1.0 PROJECT DESCRIPTION, LOCATION, AND ENVIRONMENTAL SETTING

1.1 Project Objectives

JVR Energy Park, LLC (the applicant) proposes to develop, finance, construct, and operate a solar energy facility in southeastern San Diego County. For purposes of this Project Description, the JVR Energy Park will be referred to as the "JVR Energy Park" or the "Proposed Project."

Specific objectives for the Proposed Project are as follows:

1. Develop a solar energy project with a rated capacity of up to 90 megawatts (MWac) and a 20 megawatt energy storage facility that can supply electricity to indirectly reduce the need to emit greenhouse gases (GHGs) caused by the generation of similar quantities of electricity from either existing or future non-renewable sources to meet existing and future electricity demands, including during on-peak power periods.
2. Develop a solar energy project that can meet the criteria to achieve the maximum federal solar Investment Tax Credit which is intended to decrease the cost of renewable energy generation and delivery, promote the diversity of energy supply, decrease dependence of the United States on foreign energy supplies and improve United States security.
3. Balance the development of the solar energy project with the protection of natural resources, which may include preservation of on-site biological and cultural resources and the establishment of a wildlife movement corridor.
4. Develop a utility-scale solar energy project that improves local electrical reliability for the San Diego region by providing a source of local generation as near as possible to existing San Diego Gas and Electric (SDG&E) transmission infrastructure and other recent regional transmission improvements.
5. Provide a new source of energy storage that assists the state in achieving or exceeding the energy storage target of 1.3 gigawatts of energy storage by 2020, consistent with the terms of Assembly Bill (AB) 2514.
6. Assist in directly achieving or exceeding the state's Renewable Portfolio Standard (RPS), as mandated under the 100 Percent Clean Energy Act of 2018 (SB 100), by developing and constructing California RPS-qualified solar generation to ensure that 44% of total electricity sold to retail customers by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 comes from eligible renewable energy resources.

7. Assist in directly achieving or exceeding the state's mandate to obtain 100 percent of total retail sales of electricity from eligible renewable energy resources and zero-carbon resources by December 31, 2045 (SB 100).
8. Site solar energy projects in areas within San Diego County that have excellent solar attributes, including but not limited to high direct normal irradiance (DNI), in order to maximize productivity.
9. Develop utility-scale solar energy projects within San Diego County that support the economy by investing in the local community, create local construction jobs, and increase property tax revenue.

1.2 Project Description

The Proposed Project area is approximately 1,345 acres in southeastern San Diego County (see Figure 1-1, Regional Location Map). The Project area includes several public right-of-way (ROW) easements for Old Highway 80, as well as 500 feet of SDG&E easements, and an easement for the San Diego and Arizona Eastern Railway on the western edge of the project site. (see Table 1-1, Project APNs for JVR Energy Park).The proposed solar facility would cover approximately 691 acres within the Project area (shown on Figure 1-2, Specific Location Map) and would be set back an additional 90 feet from the 60-foot-wide strip of federal land along the U.S./Mexico border. The solar facility would use photovoltaic (PV) single-axis tracker electric generation system technology to produce solar energy at the utility scale, including inverters, an on-site substation, and a 20 MW battery storage facility. The Proposed Project would have a rated capacity of up to 90 MW(ac) of solar energy.

JVR Energy Park

The JVR Energy Park site consists of approximately 691 acres of development on 1,345 acres of privately-owned property. Approximately 691 acres would be disturbed to develop the facility and access roads. The Proposed Project would have a rated capacity of up to 90 MW of alternating current (AC) generating capacity and would consist of approximately 297,416 PV modules fitted on single axis solar trackers. The Proposed Project would be located immediately east of the community of Jacumba Hot Springs and immediately north of the U.S./Mexico international border. In addition to the panels and direct current (DC) to AC conversion equipment (i.e., inverter and transformer units), the Proposed Project would include the following primary components, as shown in Figure 1-2, Specific Location Map:

- A 1,000- to 1,500-volt DC underground collection system and a 34.5-kilovolt (kV) overhead and underground AC collection system linking the inverters to the on-site Project substation.

- An on-site collector substation located on an approximately 22,500 square foot (150-foot by 150-foot) grounding mat atop gravel.
- A 138 kV overhead and underground transmission line (gen-tie) would connect on-site.
- A San Diego Gas & Electric (SDG&E) 138 kV switchyard adjacent to the on-site collector substation that will be utilized to transfer power from the on-site collector substation to the SDG&E 138 kV transmission line that traverses the Proposed Project. The 138-kV switchyard will be designed, constructed and operated by SDG&E.
- An approximately 20 MW battery energy storage system that would be located throughout the project site in 26 self-contained 6,800-square foot containers housing lithium-ion batteries.

The Proposed Project's collector substation and the SDG&E switchyard would be sized to accommodate the full 90 MW(ac) solar facility and the proposed 20 MW energy storage system. The Proposed Project would be located entirely on private lands within unincorporated San Diego County. Upon completion, the Proposed Project would be monitored and operated off site through a supervisory control and data acquisition (SCADA) system. See Sections 1.2.1 and 1.2.2 for additional details.

Primary access to the Proposed Project site would be provided via an improved access road from off of Old Highway 80, as shown on Figure 1-4. Additional access points would be provided off of Carrizo Gorge Road.

1.2.1 Project Components and Activities

This section describes the Project components, construction and operation activities. It also discusses a key aesthetic mitigation measure required by the County for decommissioning activities at the end of the life span of the solar facility. The anticipated construction and operational water usage of the solar facility is also discussed in this section.

Modules

The Proposed Project consists of installation of single-axis trackers oriented in the north-south direction. Single-axis tracking systems would employ a motor mechanism which allow the arrays to track the path of the sun (from east to west) throughout the day. The PV modules would cover the majority of the area of the proposed facility. PV modules generate electricity by safely converting the energy of the sun's photons into DC electrons.

The majority of PV modules are guaranteed a useful life of 35 years in adverse weather conditions. The PV modules are uniformly dark in color, non-reflective, and designed to be highly absorptive

of all light that strikes their glass surfaces. The PV modules deployed for use in the Proposed Project would comply with all industry standard quality testing. The PV modules would be electrically connected to the grounding system of the facility in accordance with local codes and regulations. The final PV module selection would be determined during the detailed engineering phase.

Support Structures

Racking refers to the support structure to which the solar PV modules are affixed that allows them to be properly positioned for maximum capture of the sun's solar energy. The PV module arrays (a row of PV modules) would be a single-axis tracker system that would be oriented along a north to south axis. The mounting structures are typically mounted on metal pipe pile or I-beam foundations 6 to10 inches in diameter. The beams would be driven into the soil using a pile/vibratory/rotary driving technique similar to that used to install freeway guardrails. Driven pier foundations offer multiple benefits, including quick installation and minimal site disturbance, and are a "concrete-free" foundation solution that would allow for easy site reclamation at the end of the Proposed Project's lifecycle. Most foundations would be driven to approximate depths of 10 to 15 feet deep depending upon required embedment depth. The PV modules, at their highest point, would be approximately 7 feet above the ground surface.

The PV module arrays' final elevations from the ground would be determined during the detailed Project design process; however, for the purpose of the analysis in this EIR, maximum height above the graded ground surface would be less than 9 feet. It is common practice to maintain as low of an elevation profile as possible to reduce potential wind loads on the PV module arrays.

Inverters, Transformers, and Associated Equipment

PV modules would be electrically connected to adjacent modules to form module "strings" using wiring attached to the support structures. PV module strings would be electrically connected to each other via underground wiring. Wire depths would be in accordance with local, state, and federal codes. String wiring terminates at PV module array combiner boxes, which are lockable electrical boxes mounted on or near an array's support structure. Output wires from combiner boxes would be routed along an underground trench system approximately 3.5 feet deep and 1 foot wide, including trench and disturbed area, to the inverters and transformers.

Inverters are a key component of solar PV power-generating facilities because they convert the DC generated by the PV module array into AC that is compatible for use with the transmission network. The inverters within the electrical enclosures would convert the DC power to AC power and the medium-voltage transformers would step up the voltage to collection-level voltage (34.5 kV).

The inverters, medium-voltage transformers, and other electrical equipment are proposed to be located on skids throughout the Project site, totaling approximately 47 units. These power conversion stations would be either shop fabricated as one unit, or field assembled on site. The inverter skid consists of the inverter, switch gear, and transformer. The skid is then mounted on a set of driven piles with a grounding mat and surrounded by gravel. All electrical equipment would be either outdoor rated or mounted within enclosures designed specifically for outdoor installation. The proposed equipment poses no electrical shock risk and is safe to touch.

Collector Substation

The Proposed Project requires the use of an on-site collector substation (150-foot by 150-foot (22,500 square feet)) that would be located near the center of the eastern side of the Project site. The purpose of the substation is to collect the power received from the collector lines and convert the voltage from 34.5 kV to 138 kV as well as to be able to isolate equipment (i) in the event of an electrical short-circuit, or (ii) for maintenance.

The major components of the on-site substation are as follows:

- One 34.5 kVA to 138 kVA transformer including secondary containment area per local and state regulations.
- One 138 kV circuit breakers used to protect equipment from an electrical short circuit on the gen-tie. Disconnect switches, wire, cables and aluminum bus work used to connect and isolate the major pieces of equipment.

- The substation also includes a single 34.5 kV circuit breaker used to protect equipment from an electrical short circuit on the collection system, disconnects and bus work to connect and isolate the collector circuits, relays used to detect short circuits, equipment controls, telemetering equipment used to provide system control and data acquisition, voice communication, and the meters used to measure electrical power generated from the Project. Switching gear and other components would be a maximum of 60 feet in height.
- A 138 kV dead-end structure that would have a maximum height of 60 feet. This structure is where the power output from each transformer is delivered to the gen-tie line.
- One Control House for the SCADA system that would be approximately 15 feet in height by 30 feet in length.

SDG&E Switchyard

The proposed SDG&E 138 kV switchyard is adjacent to the proposed collector substation and will be connected to both the proposed collector substation and the 138 KV transmission line via a short overhead transmission line, approximately 1,500 feet in length. In addition, a XX feet overhead transmission line will connect the SDG&E switchyard and collector substation. Both the proposed collector substation and SDG&E switchyard are located in the approximately XX square foot area described above. The size of the switchyard is approximately XX square feet. The proposed switchyard may include circuit breakers, overhead electrical bus work, switches and controls, and a control building, and the entire switchyard area will be enclosed inside a security fence. SDG&E requires a 30-feet wide, asphalt paved access road for switchyard operations. Therefore the access route leading from Carrizo Gorge Road to the SDG&E switchyard will be a 30-feet wide paved asphalt road.

Energy Storage System

A battery energy storage system is proposed to be located adjacent to the on-site substation. It would consist of approximately 47 inverters in 26 enclosures equipped with batteries capable of delivering approximately 20 MW AC of energy. Each enclosure would include an air conditioning unit for cooling purposes and a self-extinguishing fire system. The enclosures are similar to shipping containers and are approximately 45 feet long by approximately 9 feet in height, and approximately 8 feet wide. Critical information from the system would be monitored along with the solar plant performance with the SCADA control system described in more detail below.

Connector Line, Fiber-Optic Line, and Point of Interconnection

The Proposed Project would interconnect to the existing 138 kV overhead transmission line. The length of the interconnecting, or gen-tie, line would be approximately 1,500 feet. Three SDG&E easements exist adjacent to the north side of the onsite substation.

The proposed SDG&E switchyard would be located adjacent to the Project site and accessible off of Carrizo Gorge Road. Electrical collection systems would be installed in conjunction with the panel arrays within the Project site, connecting each solar panel to a feeder circuit; each feeder circuit would in turn be connected to the on-site collector substation. The energy generated would be transmitted from the on-site step-up conversion directly to the proposed SDG&E switchyard. To provide for communication, a fiber-optic cable would be placed underground to connect the onsite substation to the SDG&E switchyard. Utility interconnection regulations require the installation of a second separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the Project footprint and the proposed switchyard boundary.

Control System

Operation of the solar facility would require monitoring through a SCADA system, which would be located within a Control House in the substation yard as identified previously. The SCADA system would be used to provide critical operating information (e.g., power production, equipment status and alarms, and meteorological information) to the power purchaser, Project owners and investors, grid operator, and Project operations teams, as well as to facilitate production forecasting and other reporting requirements for Project stakeholders. The Proposed Project would also have a local overall plant control system (PCS) that provides monitoring of the solar field as well as control of the balance of facility systems. The microprocessor-based PCS would provide control, monitoring, alarm, and data storage functions for plant systems as well as communication with the Proposed Project's SCADA system. Redundant capability would be provided for critical PCS components so that no single component failure would cause a plant outage. All field instruments and controls would be hard-wired to local electrical panels. Local panels would be hard-wired to the PCS. Wireless technology would be considered as a potential alternative during final Project design. The SCADA system would be monitored remotely and no on-site operations and maintenance facilities or personnel would be necessary.

Site Design

Security

The approximately 691-acre Project site would be fenced along the entire facility boundary (see Figure 1-2) for security with fencing that meets National Electrical Safety Code (NESC) requirements for protective arrangements in electric supply stations. Fencing will be 7 feet in height with a 6-foot-high chain-link perimeter fence and 1 foot of three strands of barbed wire along the top with a 4-inch maximum clearance from the ground surface. The fence would be constructed with anti-climbing material(s), such as small ring chain-link fencing. Signage in Spanish and English for electrical safety would be placed along the perimeter of the Project site, warning the public of the high voltage and the need to keep out. Signage would also be placed

within the Project site where appropriate. Some localized security-related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction and/or operation. Remote-monitored cameras and alarm system(s), and perimeter and safety lighting that would be used only on an as-needed basis for emergencies, protection against security breach, or unscheduled maintenance and trouble-shooting (such as may occasionally be required) would be installed.

Maintenance and Security Lighting

Lighting would be designed to provide security lighting and general nighttime lighting for operation and maintenance personnel, as may be required from time to time. Lighting would be shielded and directed downward to minimize any effects to the surrounding area, and would be used only on an as-needed basis. Lighting would be provided at the entrance gates and the Project substation.

The on-site substation would include lighting inside the substation to allow for safety inspections or maintenance that may be required during the evening hours. Lighting would also be provided next to the entrance door to the control house and mounted at the entrance gates to allow for safe entry. Since maintenance activities are not anticipated to be completed during the evening hours, lights would only be turned on if needed.

All lighting for the solar facility would have bulbs that do not exceed 100 watts, and all lights would be shielded, directed downward, and would comply with the County of San Diego Light Pollution Code (LPC), also known as the Dark Sky Ordinance, Section 59.101 et seq. Additionally, lighting for the project will be designed in accordance with the San Diego County Zoning Ordinance, Performance Standards Section 6320, 6322, and 6324 which guide performance standards for glare, and controls excessive or unnecessary outdoor light emissions.

Access Roads

The Proposed Project would include dual purpose fire access roads and service roads. All road surfaces would have a permeable nontoxic soil binding agent in order to reduce fugitive dust and erosion in accordance with County Code Section 87.428, Dust Control Measures, and with San Diego Air Pollution Control District (SDAPCD) Rule 55, which regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions. In addition, the primary access driveway would be approximately 35-feet wide and provided off the existing Old Highway 80.

Fire Access Roads: The interior site roads would be constructed as suitable for fire access roads and would be constructed to a minimum width of approximately 20 feet improved width. The roads would be graded and maintained to support the imposed loads of fire apparatus (not less than

50,000 pounds), and would be designed and maintained to provide all-weather driving capabilities. The purpose of the fire access roads is to allow for two-way access of fire apparatus throughout the Project site in order to reach all of the inverter stations.

The non-load-bearing surface material of the fire access roads would consist of an all-weather surface capable of supporting 50,000 pounds as required by County Fire Code. Fire access roads would be oriented in an east-west direction and would have north–south connections. An access-controlled gate would be installed at the substation driveway. The Proposed Project driveway would be constructed off the existing Old Highway 80, with secondary access provided off of Carrizo Gorge Road.

Fire Protection

There are several fire stations that are owned and staffed by San Diego County Fire Authority (SDCFA), California Department of Forestry and Fire Protection (CAL FIRE), and U.S. Forest Service (USFS) within the Proposed Project area. The Jacumba Hot Springs area is serviced by the SDCFA's Jacumba Fire Station (Station 43).

Fire emergencies that may occur at the Proposed Project site would be primarily responded to by SDCFA's Jacumba Fire Station (Station 43), which is staffed by both volunteer reserve and career firefighters. Additional response would be available from SDCFA's Boulevard and Campo Fire Stations, and SDCFA's Lake Morena Fire Station (Station 43). Other fire protection aid would come from the CAL FIRE Campo Station, as well as from mutual aid resources from throughout San Diego County and the state, when necessary. Clearing and grubbing of the 1,345-acre Project site would be required for construction and access to the Project site. Consistent with County requirements for discretionary approvals for projects in wildland/urban interface areas, a Fire Protection Plan will be prepared for the Proposed Project. Fire prevention measures include, but are not limited to:

- Constructing all on-site facilities of non-combustible or ignition-resistant materials in accordance with the County Building Code
- Three 10,000-gallon water storage tanks with fire department connections would be available
- Identifying roads and structures to comply with County Consolidated Fire Code, Section 505
- An illuminated sign at the Project entrances that clearly indicates inverter and electrical grid layout and entire site de-energizing disconnect switch identification and location
- Clearing of all existing native vegetation to a height no taller than 6 inches and removal of all dead, dying, and dried (low fuel moisture) vegetation

- 24-hour remote surveillance at the facility
- A fuel treatment perimeter area ensuring safe and effective emergency response to the site should a fire occur

Project Construction, Operation, and Decommissioning Activities

Construction Activities and Methods

The construction of the solar facility would consist of several phases, including site preparation (described below), development of staging areas and site access roads, solar array assembly and installation, and construction of electrical transmission facilities. Table 1-2, Proposed Solar Project Construction, Duration, Equipment and Workers by Activity, identifies the proposed duration, workers and equipment likely to be associated with development of the Proposed Project.

Site Preparation and Grading

Clearing and Grading: Construction of the Proposed Project would involve clearing and grubbing of the existing vegetation; grading necessary for the construction of access and service roads and the installation of solar arrays; trenching for the electrical DC and AC collection system, including the telecommunication lines; installation of the inverter stations; construction of underground 34.5 kV collection systems leading to the Project substation; and construction of the Project substation, energy storage facility, and the dual circuit overhead/underground gen-tie line from the Project substation to the adjacent SDG&E transmission corridor. Major Grading Permits would be required, and would be obtained once grading quantities are finalized. Grading is expected to be balanced on site, with approximately 235,000 cubic yards of cut redistributed across the site.

The Proposed Project will implement the following measures in compliance with the Grading Ordinance (County Code Section 87.428) to minimize fugitive dust (PM_{10}) during the construction phase of the Project. These measures are included in the preliminary grading plans and are to be recorded on the final grading for County approval:

- The applicant will apply water three times per day or as necessary depending on weather conditions to suppress fugitive dust during grubbing, clearing, grading, trenching, and soil compaction and/or apply a nontoxic soil binding agent to help with soil stabilization during construction. These measures will be applied to all active construction areas, unpaved access roads, parking areas and staging areas as necessary.
- Sweepers and water trucks will be used to control dust and debris at public street access points.

- Internal construction roadways will be stabilized by paving, chip sealing or nontoxic soil binders after rough grading.
- Exposed stockpiles (e.g., dirt, sand) will be covered and/or watered or stabilized with nontoxic soil binders, tarps, fencing or other suppression methods as needed to control emissions.
- Traffic speeds on unpaved roads will be limited to 15 miles per hour (mph).
- All haul and dump trucks entering or leaving the site with soil or fill material will maintain at least 2 feet of freeboard, or cover loads of all haul and dump trucks securely.
- Disturbed areas will be reseeded with a native plant hydroseed mix as soon as possible after disturbance

Collection System Trenching. Trenching requirements for the DC and AC electrical collection system and telecommunication lines would consist of a trench up to approximately 3 to 4 feet deep and 1 to 2 feet wide. The trenches may be filled with sand or another inert material to provide insulation and heat dissipation for the direct buried cable within the collection system. The topsoil from trench excavation would be set aside before the trench is backfilled and would ultimately comprise the uppermost layer of the trench. Excess material from the foundation and trench excavations would be used for site leveling.

PV System Construction Overview. Project construction would include several phases occurring simultaneously with the construction of: (1) PV systems assembly consisting of pile driving of support racks to a depth of approximately 8feet and the placement of panels on support racks, (2) trenching and installation of the DC and AC collection system, (3) point of interconnection upgrades, and (4) the grading of access roads.

Soil Stabilization. In order to reduce fugitive dust and erosion, the disturbed areas on the Project site would either be treated in one of the following methods, or a combination of both: Treatment with a permeable nontoxic soil binding agent (preferred method), and/or placement of disintegrated granite (DG) or other base material (good for roads).

Construction Personnel, Traffic, and Equipment

The number of workers expected on the site during construction would vary over the construction period and is expected to average approximately 200 each day, generating about 200 daily round trips, with a maximum of 400 trips a day during the most intense phase of construction (i.e., the racks and panels installation). Deliveries of equipment and supplies to the site would also vary over the construction period but are expected to average about 40 to 70 daily trips.

It is assumed that all employees would arrive within the morning peak hour and depart within the evening peak hour, and delivery truck trips would be distributed evenly throughout a 12-hour-shift day, between the hours of 7:00 a.m. and 7:00 p.m. Since the surrounding area is rural, traffic is very low on the local roads surrounding the Project site. Implementation of the Proposed Project would result in a temporary increase in traffic along these roads, but not to the level of the road carrying capacity. No road closures are anticipated during Project construction. A County-required Traffic Control Plan to provide safe and efficient traffic flow in the area and on the Project site would be prepared prior to construction. The Traffic Control Plan would be prepared in consultation with the County of San Diego and would contain Project-specific measures for noticing, signage, policy guidelines, and the limitation of lane closures to off-peak hours (although it is noted that no requirement for lane closures has been identified).

During the peak of construction, a typical day would include the transportation of parts, movement of heavy equipment, and transportation of materials.

Operational Activities and Methods

The Project would be an unmanned facility that would be monitored remotely. Appropriate levels of security lighting would be installed at the Project entrance. The site would be secured 24 hours per day by remote security services with motion-detection cameras.

Underground Collection System. The underground portion of the cable systems would be inspected and repaired if and when problems occur.

Electrical Substation, SDG&E Switchyard and Energy Storage Facilities. During operation, operation and maintenance staff would visit the Project substation and energy storage facilities periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

Solar Field. The solar panels, racking systems, inverters, transformers, and other electrical components would be inspected periodically. Electrical components would be tested routinely according to manufacturer's recommendations. In the event that remote monitoring indicates a problem, such as low performance in a section of the solar field, a crew would investigate and correct the problem on an as-needed basis. Approximately twice a year, if needed, the solar panels would be washed utilizing a water truck and purified water. In addition, the on-site meteorological stations would be cleaned and adjusted on a regular basis.

Decommissioning Activities and Methods

The JVR Energy Park would operate, at a minimum, for the life of a long-term Power Purchase Agreement (PPA). The initial term of the PPA for the solar facilities is anticipated to be 20 years, with additional terms possible. The lifespan of the solar facility equipment is estimated to be 35 years. Due to the establishment of the Project infrastructure (both physical and contractual), the continued operation of JVR Energy Park beyond the initial PPA term is very likely. Accordingly, the EIR analysis assumes a conservative 35-year life span. A key mitigation measure for aesthetic impacts is the removal of Project structures at the end of the life span of the solar facility. The decommissioning process is identified below and in Section 2.1 Aesthetics of this EIR.

Decommissioning and Recycling

Decommissioning would first involve removing the panels for sale into a secondary solar PV panel market or recycling. The majority of the components of the solar installation are made of materials that can be readily recycled because the panels' components can be broken down. If the panels can no longer be used in a solar array, the aluminum can be resold, and the glass can be recycled. Other components of the solar installation, such as the rack structures and mechanical assemblies, can be recycled as they are made from galvanized steel. Equipment such as inverters, transformers, and switchgear can be either reused or their components recycled. The equipment pads are made from concrete that can be crushed and recycled. Underground conduit and wire can be removed by uncovering trenches and backfilling when done. The electrical wiring is made from copper and/or aluminum and can be reused or recycled as well.

Dismantling

Dismantling the solar facility would entail disassembly of the solar facilities and substantive restoration of the site. Impacts associated with closure and decommissioning of the Project site would be temporary and would involve the following steps to dismantle the Project site and return it back to a conforming use:

1. The aboveground (detachable) equipment and structures would be disassembled and removed from the site. Detachable elements include all panels, inverters, transformers, and associated controllers and transformers. Removal of the aboveground conductors on the transmission line would also be implemented. Most of these materials can be recycled or reclaimed. Remaining materials that cannot be recycled or reclaimed would be limited and would be contained and disposed of offsite, consistent with the County of San Diego Construction Demolition and Debris Management Plan (County Ordinance 68.508-68.518).
2. Underground collector and transmission components would be abandoned in place and cut off down to three feet.

3. The use of the land would have to return to a use that is consistent with the County of San Diego Zoning Ordinance at the time of dismantling. A General Plan Amendment and Rezone for the project will be processed prior to development.
4. If a new use is not proposed, the decommissioning would include removal of all ground-level components and preparing the site with a soil stabilization agent, or reseeded with native species. These activities would be consistent with current zoning General Rural (S92), Open Space (S80), and Specific Plan (S88) or future applicable zoning.

Removal Surety

The final decommissioning plan(s) that would be provided within one year of issuance of the building permits for the Project would comply with Section 6954.b.3 (d) of the County of San Diego Zoning Ordinance (County of San Diego 2014) for removal surety as follows:

> The operator shall provide a security in the form and amount determined by the Director to ensure removal of the Solar Energy System. The security shall be provided to PDS prior to building permit issuance. Once the Solar Energy System has been removed from the property pursuant to a demolition permit to the satisfaction of the Director, the security may be released to the operator of the Solar Energy System.

Financial responsibility for decommissioning would be an obligation of the owner of the solar facility.

Water Usage

The following discussion includes an estimate of the amount of water that would be needed for the Proposed Project during the construction and site preparation, ongoing panel washing, and the decommissioning and dismantling. The solar facility would use water from onsite groundwater wells, with back-up water provided by the Jacumba Community Service District (brackish water not distributed by district). The Proposed Project will require approximately 100,000 gallons per day of onsite water for approximately the first 6 weeks, during grading activities. It is anticipated that the existing wells onsite will have capacity to supply this water. Following grading, water demand will be lower, and also adequately supplied by the onsite wells. In the event that onsite groundwater is not sufficient, the Jacumba Community Services District can supply up to 100,000 gallons per day as a back-up source of water. It should be noted that for purposes of analyses such as traffic and air quality, use of the most conservative water supply source (i.e., farthest from the Project), Jacumba Community Services District, has been evaluated.

During operation the Project would obtain water for panel washing approximately twice a year and nominal amounts for other maintenance activities as necessary from the on-site wells.

Construction and Application of Soil Binding Agents

During construction, water would be used to suppress fugitive dust during grubbing, clearing, grading, trenching, and soil compaction and to apply a nontoxic soil binding agent to help with soil stabilization during construction. Water would also be used to mix concrete to be used for the substation, gen-tie, and energy storage facility foundations. Total estimated water demand for JVR Energy Park facility (by activity) is listed in Table 1-4.

Operation and Maintenance Potable Usage

Water would be used for washing the solar modules and for annual reapplication of the nontoxic permeable soil stabilizers as follows.

Solar Module Washing. It is anticipated that in-place PV panel washing would occur twice a year during evening or nighttime hours, between sunset and sunrise. Washing of the panels would be undertaken using wash trucks. Table 1-5 summarizes the operational water usage for the Proposed Project.

Decommissioning and Dismantling

It is estimated that the amount of water necessary to decommission and dismantle the Proposed Project would be less than that required for construction, because there would be no need to use water for concrete mixing or to hydrate and compact on-site fills. The activities associated with decommissioning would not include grading, and based on the estimates calculated for construction in Table 1-4, water demand for decommissioning dust abatement would be approximately 40 acre-feet of water. Additional equipment washing and modest compaction needs, if necessary, would require a further approximately 10 acre-feet. The total water demand estimated for decommissioning is approximately 50 acre-feet.

1.2.2 Technical, Economic, and Environmental Characteristics

The following provides a discussion of the Proposed Project's technical, economic, and environmental characteristics.

1.2.2.1 Technical Considerations

The Proposed Project's PV technology employs single-axis trackers oriented in the north-south direction. Single-axis tracking systems would employ a motor mechanism that would allow the arrays to track the path of the sun (from east to west) throughout the day. The motors would be installed after the horizontal cross-members are in place. In the morning, the panels would face east. Throughout the day, the panels would slowly move to the upright

position at noon, and on to the west at sundown. The panels would reset to the east in the evening or early morning to receive sunlight at sunrise.

Depending on the type of technology (modules) used, the panels would measure between 4 and 7 feet in length, and the total height of the panel system measured from ground surface would be approximately 4 to 6 feet. The Proposed Project's rack dimensions are approximately 10 feet top to bottom edge with a tracking range of motion of 52 degrees. Each rack would hold an array of panels approximately 300 feet in length. The array would have approximately 2 feet of clearance from grade and have a peak height at full tilt of approximately 9 feet at the highest edge. Each rack would be mounted on a tubular or beam-shaped post. The rack rows would be spaced at approximately 22 feet center-to-center with a minimum of 10 feet of clearance between rack edges. A series of north-to-south (spaced approximately every 1,500 to 3,600 feet) and east-to-west (spaced approximately every 600 to 1,000 feet) running all-weather fire access roads, of minimum 20-foot width, would be provided for maintenance and fire access.

1.2.2.2 Economic Considerations

The Proposed Project would help facilitate the development of a local renewable energy supply, thereby improving the reliability of electrical energy production in the San Diego region by increasing local sources of electricity rather than increasing electrical energy import. The Proposed Project would also assist in achieving the state's RPS and GHG reduction objectives by developing and constructing California RPS-qualified solar generation, approved under SB X1 2, which established a renewable energy target of 33% of total electricity sold to retail customers by 2020, and SB 100, which established a renewable energy target of 100% of total electricity sold to retail customers by 2045.

The economic benefits the Proposed Project will bring to San Diego associated with this designation include:

- A minimum capital investment of approximately $100,000,000 million in California upon completion of construction

1.2.2.3 Environmental Considerations

Solar energy can provide a number of environmental benefits, such as reductions in air and water pollution and GHG emissions as compared to other sources of energy. However, solar technology, like other energy technologies, has environmental impacts.

Potential fire risks during construction and decommissioning of the Proposed Project may stem from ignition sources such as chainsaws, wood chippers, grinders, torches, earthmoving equipment, and other vehicles that could create sparks, be a source of heat, or leak flammable materials, and other human activities and waste that would increase the possibility of fire. Once

construction is complete, the Proposed Project would introduce potential ignition sources that do not currently exist on the site, such as transformers, capacitors, electric transmission lines, substations, energy storage facilities, vehicles, and gas or electric-powered small hand tools. While the inverters and solar panels represent potential ignition sources that are considered to have low likelihood of causing fires, all of this equipment represents a risk of sparking or igniting nearby fuels, particularly within close proximity to off-site flammable vegetation. A number of fire protection measures, focusing on accessibility to and within the Proposed Project sites, as well as fuel modification providing defensible space, are provided.

Impacts associated with visual character or quality are often a factor with solar energy projects due to the contrast with existing visual elements of a neighborhood or community, such as size, massing, coverage, and scale. The Jacumba Hot Springs community was once a destination resort that has since lost much of its tourism economy. The surrounding desert is a rural area that primarily consists of open landscape with native desert plants. However, recent developments have resulted in a variable physical setting that includes both rural and major infrastructure elements. The character of the community is evolving with the growing presence of major infrastructure features that interrupt the natural landscape, such as the 500 kV Sunrise Powerlink and ECO Substation. Aesthetic/visual resources are defined as the natural and man-made elements and features of the landscape that contribute to the visual character and quality of a setting. Such visual elements include the Jacumba Mountains to the east, the In-Ko-Pah Mountains to the north, the Southwest Powerlink and Sunrise Powerlink transmission lines that are visible to the north, and the general rural character of the surrounding area.

The Project site includes six groundwater wells and nine monitoring wells. The Project would not require frequent or substantial water once in operation. As such, onsite wells would have adequate supply to provide water for the Project operation and construction.

1.3 Project Location

The Proposed Project would be located on a property that totals approximately 1,345 acres in southeastern San Diego County (see Figure 1-1, Regional Location Map). The proposed solar facilities would be within an approximately 691-acre fenced area (shown on Figure 1-2, Specific Location Map) south of Interstate 8 (I-8), east of Jacumba Hot Springs and immediately north of the U.S./Mexico border. The Proposed Project site is located within the Jacumba Subregional Group Area of the Mountain Empire Subregional Plan Area in unincorporated San Diego County (see Figure 1-2, Specific Location Map). The Proposed Project site is located with the Airport Influence Area (AIA) of the Jacumba Airport. The project is located within Zone 1 – Zone 6 of the Airport's Airport Land Use Compatibility Plan (ALUCP), and has been designed in accordance with Federal Aviation Administration (FAA) regulations. The site includes the following 24 Assessor's Parcel Numbers (APNs), as shown in Table 1-1.

Table 1-1
Project APNs for JVR Energy Park

Number	Assessor's Parcel Number	Acreage	Existing Land Use Designation and Zoning	Proposed Zoning
1	614-100-20	90.22	S88	S92
2	614-100-21	27.27	S88	S92
3	614-110-04	2.74	S88	S92
4	660-020-05	267.56	S88	S92
5	660-020-06	39.93	S88	S92
6	660-150-04	34.96	S80	S92
7	660-150-07	19.19	S80	S92
8	660-150-08	23.2	S80	S92
9	660-150-10	25.71	S80	S92
10	660-150-14	0.92	S88	S92
11	660-150-17	15.18	S88	S92
12	660-150-18	169.74	S88	S92
13	660-170-09	0.06	RR	S92
14	661-010-02	9.11	S92	S92
15	661-010-15	61.13	S88	S92
16	661-010-26	80.58	S88	S92
17	661-010-27	180.7	S88	S92
18	661-010-30	166.38	S88	S92
19	661-060-12	36.27	S88	S92
20	661-060-22	37.88	S80	S92
21	660-140-06	1.79	S88	S92
22	660-140-08	16.91	S88	S92
23	660-150-21	37.5	S88	S92
24	660-150-16	0.92	S88	S92
Total		***1345.85***	**-**	**-**

1.4 Environmental Setting

The Proposed Project area is generally an arid high desert environment that supports a limited range of habitats and biological communities. These habitats and communities include desert scrub and chaparral. Additionally, these habitats and communities may vary depending on the ecoregion, soils and substrate, and topography. The general topography of the site is gently rolling. The site

has been previously disturbed for agricultural purposes. The elevation range within the study area is from 2,720 feet to 3,360 feet above mean sea level. Soils mapped on site include Acid igneous rock land; Carrizo very gravelly sand, 0 to 9% slopes; Indio silt loam, 0 to 2% slopes, 2 to 5% slopes, and saline, 0 to 2% slopes; La Posta rocky loamy coarse sand, 5 to 30% slopes, eroded; Ramona sandy loam, 5 to 9% slopes, and 9 to 15% slopes, eroded; Reiff fine sandy loam, 0 to 2% slopes; Rositas loamy coarse sand, 2 to 9% slopes; sloping guilled land; and stony land (USDA 2017).

Fifteen vegetation communities and/or land covers occur within the study area, including fourteen sensitive communities (County of San Diego 2010a). Sensitive upland communities on the project site include: Sonoran Mixed Woody Scrub, Sonoran Mixed Woody and Succulent Scrub, Colorado Desert Wash Scrub, Encelia Scrub, Acacia Scrub, Desert Saltbush Scrub, Semi-Desert Chaparral, and Upper Sonoran Subshrub Scrub. Jurisdictional aquatic resources within the project site include: Alkali Seep, Southern Riparian Forest, Mesquite Bosque, Desert Dry Wash Woodland, and Freshwater. The remainder of the project site consists of urban/developed land and field/pasture. The Project area supports habitat for common upland species. Scrub, chaparral, and woodland habitats within the Project area provide foraging and nesting habitat for migratory and resident bird species and other wildlife species. The Project area is included within a Core Wildlife Area due to its size and the undeveloped federal land in the surrounding area, and because wildlife movement is not constrained.

Regional access to the Proposed Project area is provided by I-8 running east-west north of the project site and also by Old Highway 80 running east-west further to the south. The surrounding Jacumba area can be characterized as a high desert rural landscape featuring large lots with single-family homes and row crop agricultural operations that have been conducted in the recent past. Much public agency land (BLM, State Parks) is present in the area and offers recreational opportunities such as hiking. Old Highway 80, which runs through the southern portion of the site, is a scenic corridor identified on Figure C-5 (Scenic Highways) of the General Plan Conservation and Open Space Element. The village of Jacumba Hot Springs, located approximately 0.25 miles west of the site, lies between Old Highway 80 and the San Diego Arizona and Eastern Railroad bed. It has a population of approximately 561 and includes small residential lots and commercial lots primarily along Old Highway 80, which serves as the main street (Census Viewer 2018). The village includes a library, middle school, fire station, and the Jacumba Hot Springs Spa & Resort. The village and surrounding area are dependent on groundwater for supply and the Jacumba Community Services District provides groundwater to the village area. Jacumba Hot Springs was known in the past as a destination for people seeking therapeutic relief in the natural hot springs. This business eventually faded once I-8 was constructed, bypassing the town, and as other Southern California towns began to exploit their hot spring resources.

Utility and border infrastructure development, including the Boulevard Substation, Southwest Powerlink, and international border fence, are present in the immediate Project area.

South of I-8 in the Project site vicinity, major infrastructure elements of the landscape include the Sunrise Powerlink and Southwest Powerlink, each of which consists of a 500 kV electric transmission line supported by 150-foot-tall steel lattice structures, and the linear rust-colored U.S./Mexico border fence (located immediately south of the Proposed Project site), as depicted in Figure 1-3, Project Environmental Setting.

1.5 Project Approvals/Permits

Table 1-6 includes discretionary approvals/permits that may be obtained during the decision-making process. The table is organized by agency/jurisdiction. In the case where multiple discretionary approvals/permits are necessary from a single agency, the approvals are listed in the order they are believed to occur.

Major land use actions that would be required to implement the Proposed Project include a major use permit (MUP), General Plan Amendment, Rezone, Certificate of Compliance, building permit, grading permit, County ROW permit, and various administrative permits.

Major Use Permit. The Proposed Project is considered a Major Impact Service and Utility type of use that requires approval of a MUP on the Project site, which has a zone classification of S92. The application for a MUP would be processed according to Section 7350 of the Zoning Ordinance, including making required findings pursuant to Section 7358.

Building and Demolition Permits. The building of structures would require a building permit. Although this is a ministerial permit, the applicant must adhere to all applicable regulations. Exact requirements for building or demolition permits are dependent upon the type of structure proposed.

Grading Permits. The County Grading, Clearing, and Watercourses Ordinance (Grading Ordinance) is contained in Title 8, Division 7, of the Code of Regulatory Ordinances. The Project involves grading, clearing, and removal of natural vegetation and therefore requires a grading permit. Proposed grading activities must meet requirements of the Grading Ordinance.

General Plan Amendment and Rezone. The project site has been given an RL-40 and Specific Plan Area Land Use designation, with General Rural (S-92), Open Space (S-80), and Specific Plan (S-88) zoning. The project would require a rezone of the specific plan parcels from S-88 to S-92. Major Impact Utility Uses are allowed in these zones with approval of a Major Use Permit. Major impact services and utilities (e.g., solar generation facilities) and minor impact utilities (e.g., electrical distribution substations) are defined under Sections 1350 and 1355 of the County Zoning Ordinance (County of San Diego 2014). Upon issuance of either a major use permit (MUP), minor impact utilities (utilities that are necessary to provide essential services, such as electrical distribution substations) and major impact services and utilities (utilities and public services that have a substantial impact, such as solar facilities) are permitted uses within each of the County-

designated zones. Minor impact utilities require a minor use permit, while major impact services and utilities require a MUP. Major impact services and utilities, however, may be conditionally permitted in any zone if it is determined that public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community-wide interest (County of San Diego 2014, Section 1350). The project would include a MUP that would remove the underlying RL-40 and Specific Plan Area Land Use designation and associated designations in the Mountain Empire Subregional Plan.

Other Permits and Approvals. In addition to the key permits from the County identified above, the project would require a variety of other local, state, and federal permits. These would include, but are not limited to those permits listed in Table 1-5.

Table 1-2
Proposed Solar Project Construction Duration, Equipment, and Workers by Activity

Activity	Duration	Equipment	Pieces	Workers
Perimeter fence installation	1.5 months	Skid loader with auger attachment	1	
		Pick-up truck	1	
		Flatbed truck	1	
Site preparation and clearing/grading	2 months	Water truck – 3 axles	3	
		Grader	2	
		Bulldozer	1	
		Scraper	1	
		10-ton roller	1	
		Sheepsfoot roller	1	
		Tractor (with mower attachment)	1	
Underground work (trenching)	4 months	Excavator	2	Maximum = 400
		Sheepsfoot roller	1	
		Water truck – 3 axles	1	Average = 200
		5 kW generator	1	
		Aussie padder (screening machine)	1	
		4x4 forklift	1	
System installation	4.5 months	4x4 forklift	8	
		Small crane (80 ton)	1	
		ATV	20	
		Pile driver	4	
		Pick-up truck	4	
		5 kW generator	2	

Energy storage system	2 months	Small crane (80 ton)	1	
		Grader	1	
		4x4 forklift	1	
Testing & commissioning	1 month	Pick-up truck	4	
Site cleanup & restoration	1 month	Grader	1	
		Skid loader	1	

Table 1-3
Construction Water Demand

Activity	Total Estimated Water Demand	Total Estimated Water Demand (acre-feet)[1]
Site preparation (clearing, grubbing, grinding and dust control)	1 acre-foot/day for 28 days	28
Grading	1.1 acre-foot/day for 60 days	64
Dust abatement[2]	About 47,000 gallons/day for 125 days	18
Other construction needs	Water necessary for other construction needs such as filling tanks for fire protection; washing stations for vehicles/equipment (noxious weed mitigation); the 1,500-foot gen-tie line; and concrete hydration requirements for substation, inverter, and other facility foundations (e.g., fencing, lighting).	2
	Total Construction Water	**112**

Notes:

1 1 acre-foot equals 325,851 gallons.

2 Dust abatement is included in the estimate for initial site preparation (first 40 days); therefore, general dust abatement was assumed to occur over 104 days (i.e., the remainder of the construction phase).

Table 1-4
Operation Water Demand

Activity	Total Estimated Water Demand (acre-feet)
Panel Washing	10
Total Water Use / Year	**10**

Table 1-5
Approvals/Permits Expected to be Obtained

Government Agency	Action/Permit
County of San Diego	• General Plan Amendment • Rezone • Major use permit for compliance with Sections 1350, 2705, and 2926 of the County Zoning Ordinance • County right-of-way permits (construction permit, excavation permit, and encroachment permit) • Grading permit for compliance with County's Grading Ordinance • Improvement plans • Exploratory borings, direct-push samplers, and cone penetrometers permits • Waiver of Board Policy I-111 • Certification of the Final EIR – compliance with CEQA
Regional Water Quality Control Board	• Clean Water Act Section 401 – Water Quality Certification • General Construction Stormwater Permit
Regional Airport Authority (SDCRAA)	• Review and Approval of proposed project • FAA 7460 – Aeronautical Study Determination of No Hazard
State of California Department of Fish and Wildlife	• 1603 Streambed Alteration Agreement
California Department of Transportation	• Transportation permits for the movement of vehicles or loads exceeding the limitations on the size and weight contained in Division 15, Chapter 5, Article 1, Section 35551, of the California Vehicle Code (1983)
U.S. Department of Homeland Security, U.S. Customs and Border Protection	• Consistency with U.S. Customs and Border Protection safety and access policies
	•
	•
Air Pollution Control District	• Air quality permit to construct
San Diego County Fire Authority	• Fire District Approval; Fire and Emergency Protection Services Agreement
California Public Utilities Commission	• Section 851 Advice Letter
Miscellaneous	• All other discretionary permits and approvals necessary from local, state and federal agencies with jurisdiction over the project.

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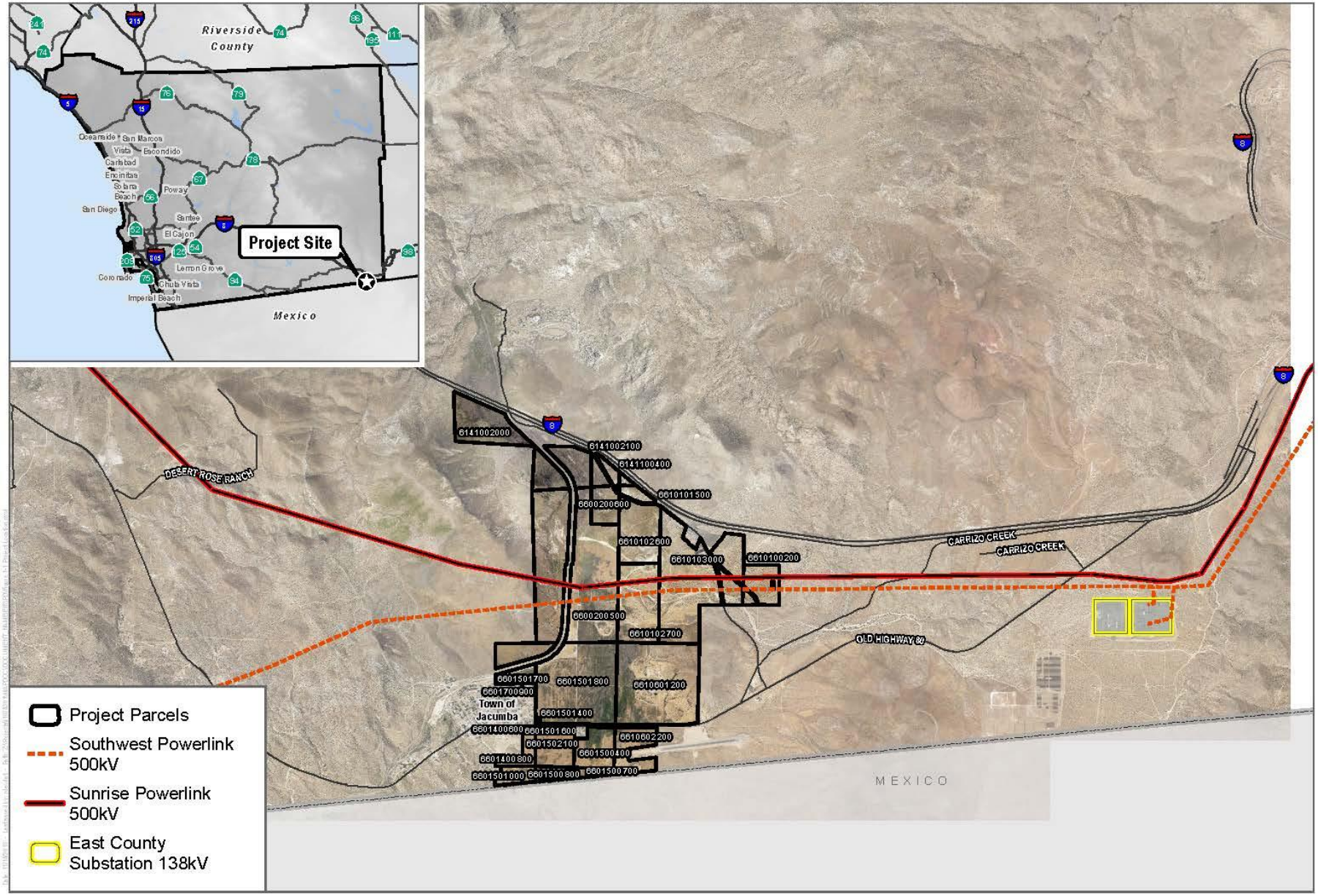

SOURCE: SANGIS 2017

DUDEK 0 2,000 4,000 Feet

FIGURE 1-1

Project Location

Jacumba Valley Ranch Solar Energy Project

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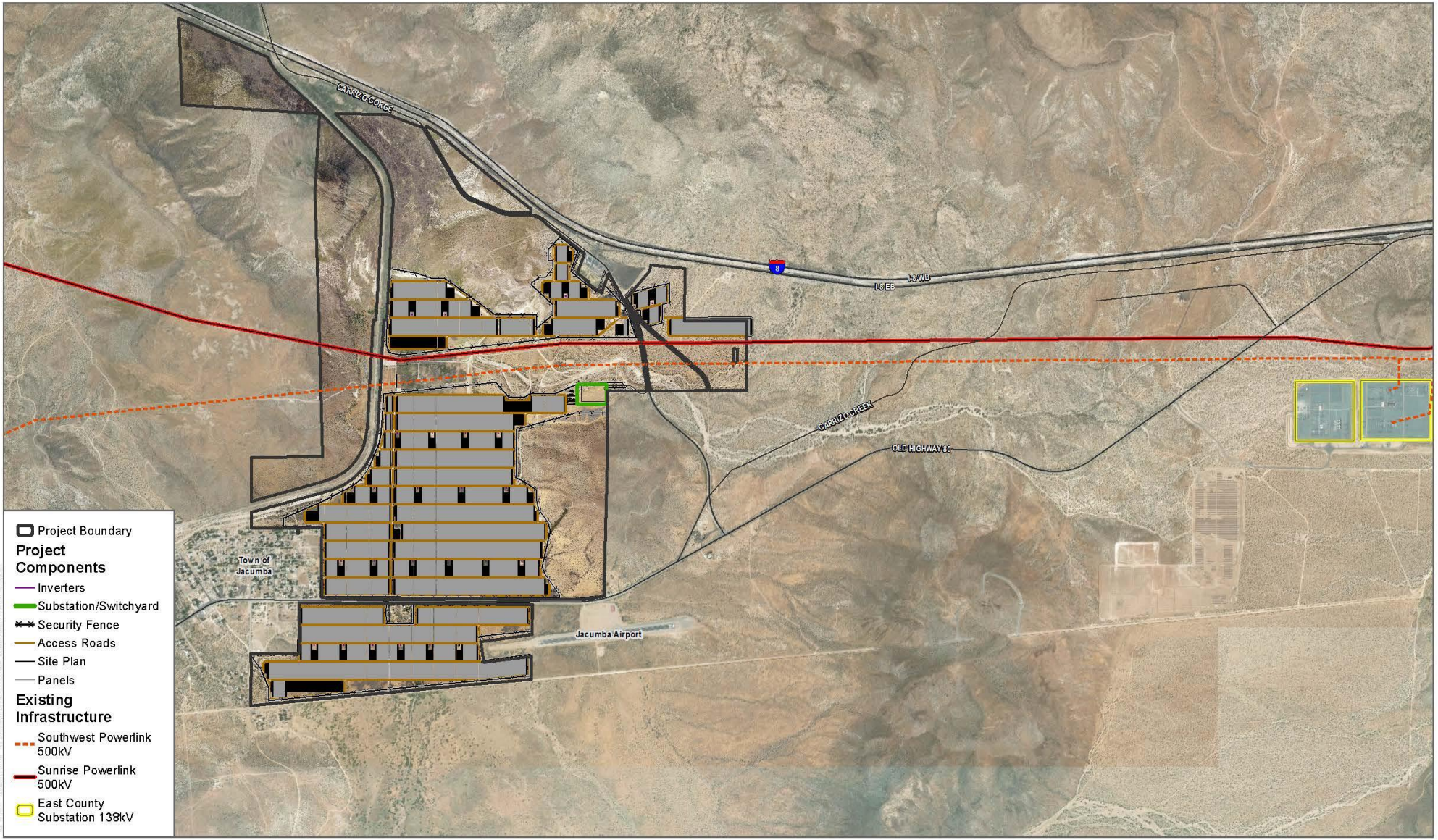

SOURCE: SANGIS 2017

DUDEK 0 800 1,600 Feet

FIGURE 1-2

Project Components

Jacumba Valley Ranch Solar Energy Project

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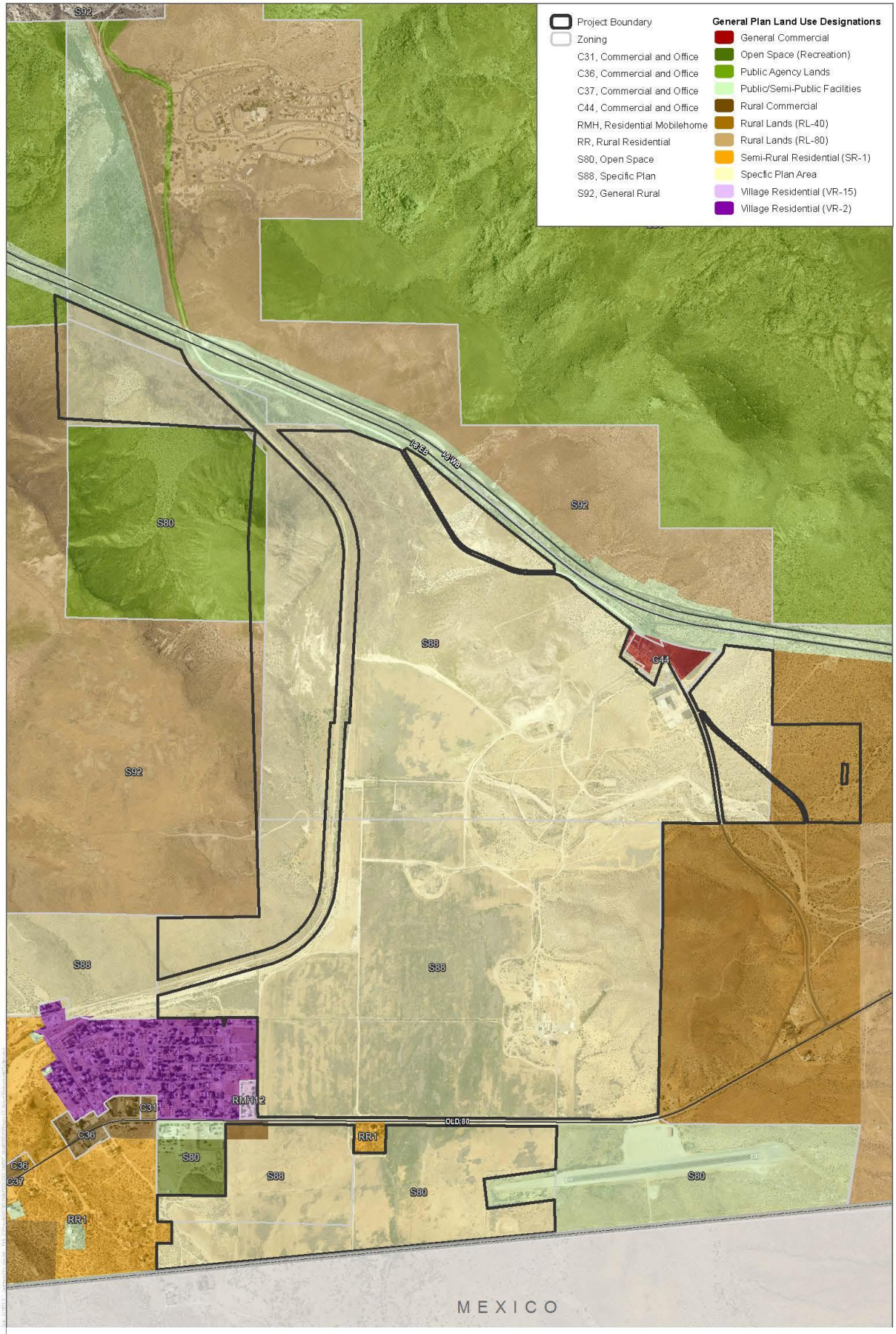

SOURCE: SANGIS 2017

DUDEK 0 500 1,000 Feet

FIGURE 1-3

Project Environmental Setting

Jacumba Valley Ranch Solary Energy Project

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