



Berrenda Mesa Water District Solar Project

Initial Study – Mitigated Negative Declaration

prepared by

Berrenda Mesa Water District
14823 Highway 33
Lost Hills, California 93249
Contact: Phillip D. Nixon, General Manager

prepared with the assistance of

Rincon Consultants, Inc.
7080 North Whitney Avenue, Suite 101
Fresno, California 93720

August 2019



RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Initial Study

1. Project Title

Berrenda Mesa Water District (BMWD) Solar Project

2. Lead Agency Name and Address

Berrenda Mesa Water District
14823 Highway 33
Lost Hills, CA 93249

3. Contact Person and Phone Number

Phillip D. Nixon, General Manager
Berrenda Mesa Water District
(661) 797-2671
pnixon@lhwd.org

4. Project Location

The project site is an approximately 60-acre parcel owned by BMWD (currently APN 057-070-25-00-8) near the Keck's Corner area in northwestern unincorporated Kern County, California. It is located north of State Route (SR) 46, west of SR 33, and southeast of Kecks Road and the California Aqueduct (see Figure 1). The project site is approximately 1.5 miles southeast of the BMWD Pump Station A facility to which it would directly interconnect. Figure 2 shows the project site, surrounding parcels and the site's relationship to the BMWD Pump Station A facility.

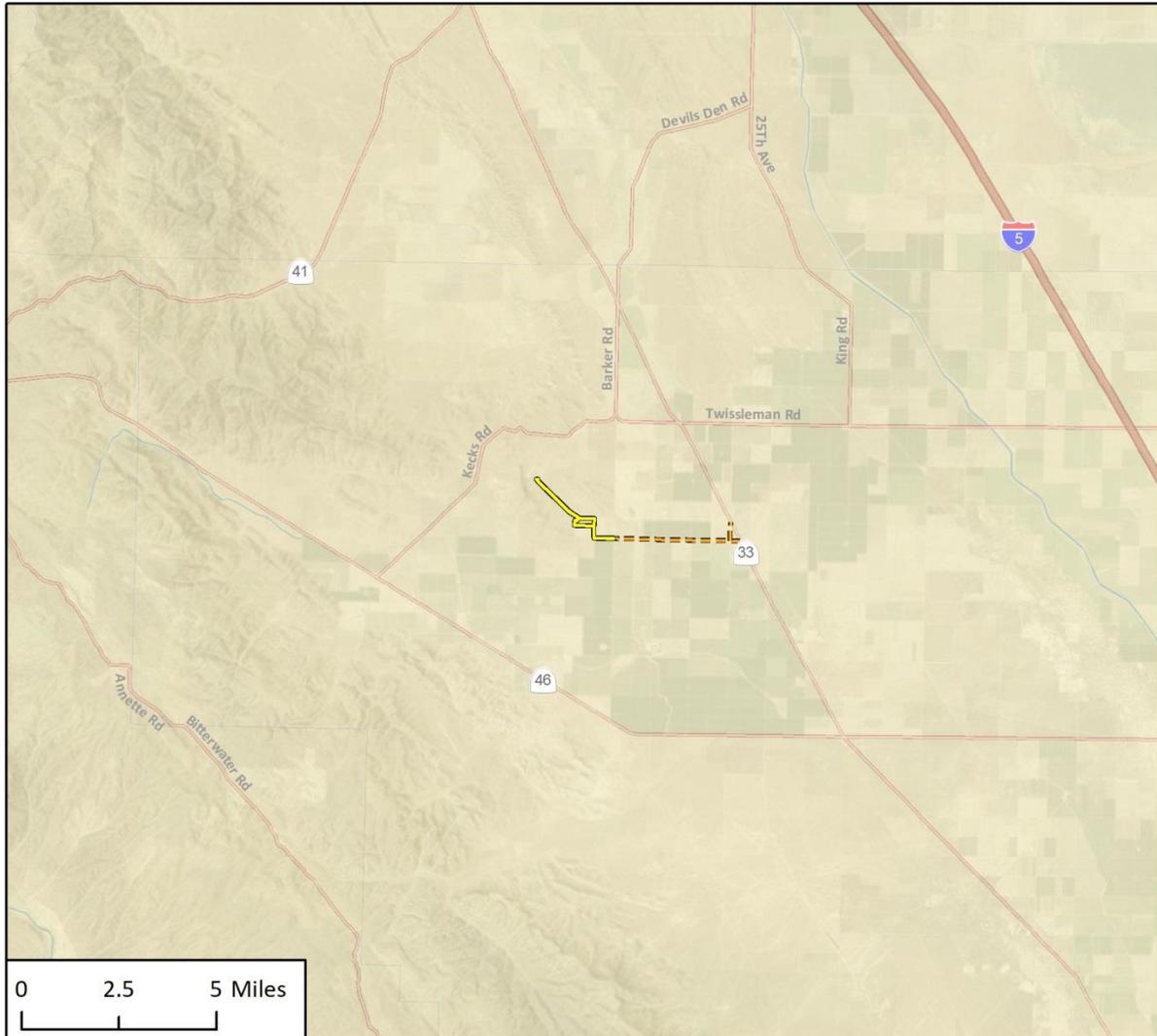
5. Project Sponsor's Name and Address

Jessica Sager, Manager, Land Development
Tesla
3500 Deer Creek Road
Palo Alto, California 94304

6. General Plan Designation

The project site is designated as Extensive Agriculture with a minimum 20- or 80-acre parcel size (8.3) and Intensive Agriculture with a minimum 20-acre parcel size (8.1) in the Kern County General Plan.

Figure 1 Regional Location



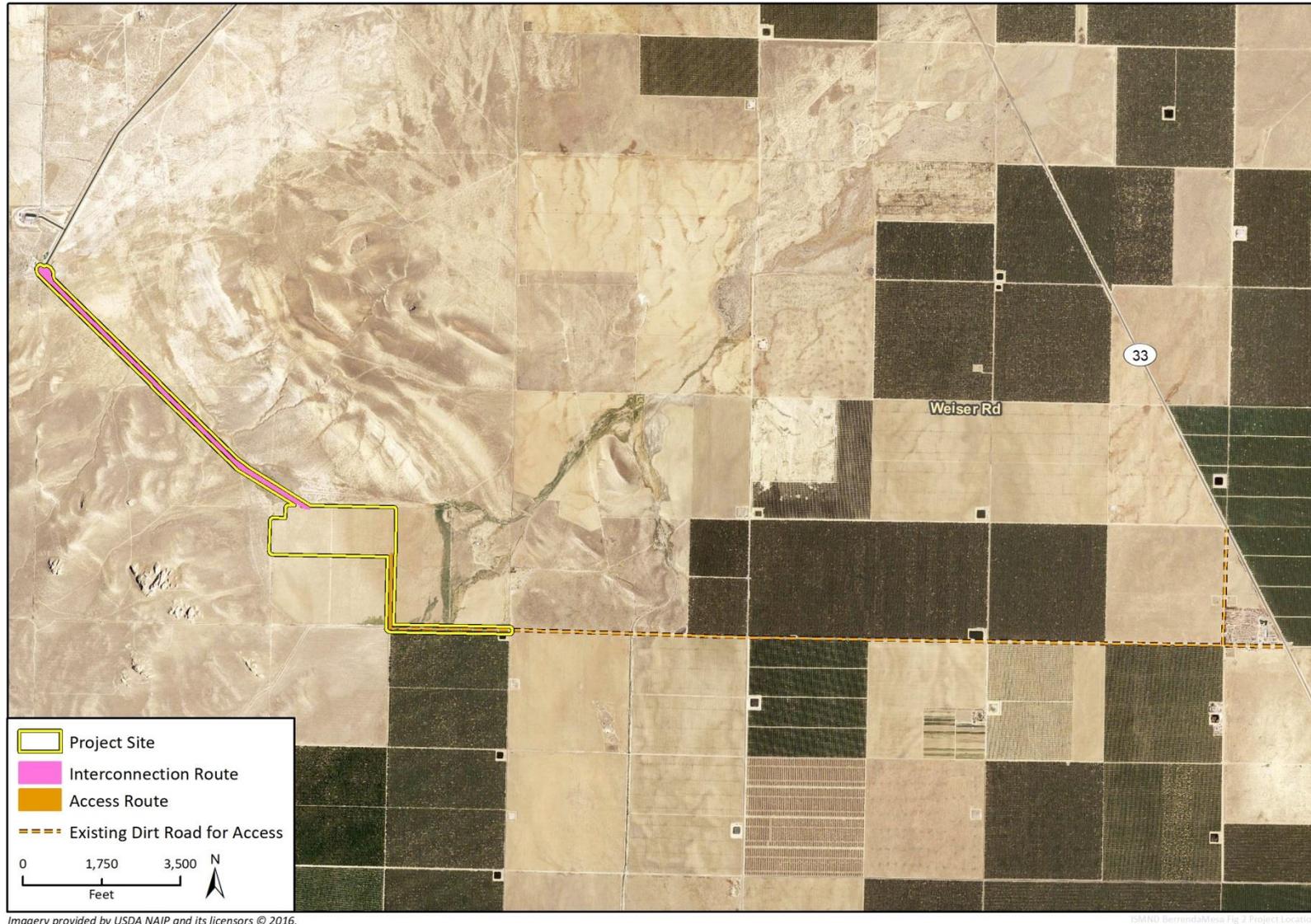
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-  Project Location
-  Existing Dirt Road for Access



BMND: BerrendaMesa Fig 1 Regional Location

Figure 2 Project Location



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7. Zoning

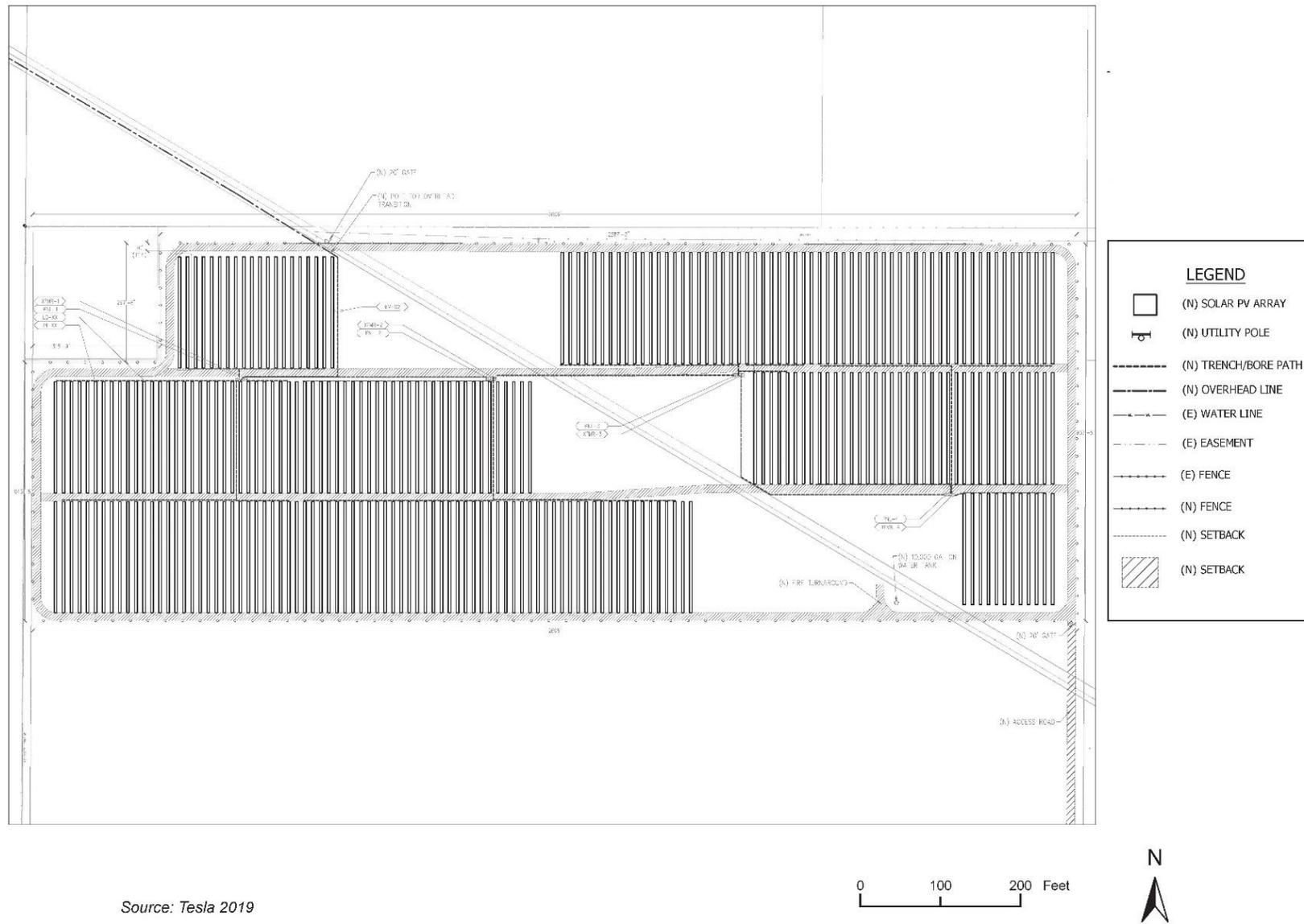
The site is zoned as Exclusive Agriculture (A). The County provides the permitted uses in this zone in Chapter 19.12 of its Zoning Code. This includes solar energy electrical generators where the power generated does not exceed the total power demand.

8. Description of Project

The proposed project includes the construction and installation by Tesla Inc. of a fenced and gated 8-megawatt (MW) solar photovoltaic (PV) energy generation facility, interconnection to Pump Station A, and installation of electrical connection equipment at Pump Station A. The solar array is proposed to generate approximately 1,300 MWh per year, approximately 80 percent of the electrical needs at Pump Station A. The project would consist of two large solar arrays including approximately 22,000 total PV panels mounted on a single-axis tracking system in order to maximize sunlight capture. Single-axis tracking systems allow the panels to follow the sun as it moves across the sky from east to west. The PV panels, when tilted to their maximum height, would be approximately eight feet above ground. The project includes an interconnect to an existing meter at BMWD Pump Station A, approximately 1.5 miles northwest of the project site, as seen in Figure 2, along a BMWD 36 to 40-foot wide easement. BMWD would acquire easements for the interconnection route and access to public roads and to Station A for project purposes over land burdened by existing BMWD easements for water pipeline and access purposes primarily, as shown in Figure 2. A new access route would extend approximately 1,600 feet south of the array and then east approximately 2,670 feet across the north side of APN 057-070-43 and a small portion of the northeast corner of APN 057-070-42 to connect to existing farm roads and then to SR 33. The interconnection would be achieved via installation of a new overhead electrical line approximately 8,000 feet in length. The final segment of the electrical run to the existing BMWD meter and point of interconnection may be installed using horizontal boring in order to avoid impacts to existing utilities. Project-related equipment such as the switchgear, inverters, and transformers would be constructed and mounted on outdoor pads distributed throughout the site. A maintenance and fire access road would be constructed in between and around the perimeter of the solar arrays, and to connect the project area to existing farm roads to the south. The array would be fenced and gated for safety; fencing design would be “wildlife-friendly” and allow for animals to pass under. Figure 3 and Figure 4 provide a site plan for the proposed project. A 10,000-gallon water tank and pump would be installed within the solar panel project area in compliance with Kern County fire code standards.

The project is intended to offset approximately 80 percent of the current electrical energy usage of BMWD’s Station A facilities. The majority of BMWD’s electricity needs are related to the pumping and conveyance of water from and along the California Aqueduct, but includes electrical needs at the solar site including an electrical water pump, switchgear, inverters, and transformers to run the solar panels and solar tracking system. Power generated would be used to operate the Station A facility and would not exceed the total power demand (i.e., no net export of electricity).

Figure 3 Site Plan – Array Site



Source: Tesla 2019

Construction

The proposed project would be constructed in four phases:

- Site Preparation and Civil Works
- Solar Array Installation
- Utility Installation for Interconnection
- Commissioning/Finishing

Project construction is expected to begin in April 2020 and be completed in October 2020, for a total duration of approximately six months. Construction of the proposed project would begin with initial clearing and grubbing of the site. Up to three temporary staging areas (approximately three acres each along the central easement corridor) would be established for construction worker parking, truck loading and unloading facilities, materials stockpiling, and racking assembly. Construction would result in approximately 28 worker-trips per day.

The panels would be mounted on pile-driven posts installed at a depth of between 5 and 10 feet. The panels and racking (i.e., PV module arrays) would cover approximately 38 acres of the 60-acre project site. The project would require approximately 250 cubic yards (CY) of fill material, with additional gravel imported (estimated to be approximately 2,000 CY) for the construction of the north-south access road and perimeter roads around the project site.

A maintenance and fire access road would be constructed in between and around the perimeter of the arrays, and to connect the project area to existing farm roads to the south. This road would total roughly 13,500 feet in length and 20 feet wide and would be covered with crushed rock and constructed to be at matching grade with the adjacent ground surface. Some civil improvements to existing dirt farm roads between SR 33 and the project site (refer to Figure 2 for the location of these roads) may be necessary and would be designed in consultation with Kern County Fire Department to confirm compliance with applicable fire code access requirements.

Interconnection of the solar array to existing facility meters would be achieved via installation of a new overhead electrical line approximately 8,000 feet in length. New power poles would be installed immediately adjacent to an existing disturbed dirt road within an existing BMWD utility easement. Spacing would be between 125 and 150 feet between poles. Each overhead pole installation would require drilling of a 2-foot diameter hole approximately 10 feet deep. Temporary disturbance associated with pole installation (including equipment staging, excavation and stockpiling) would be up to 2,000 square feet (sf). Disturbance required to install the poles, including vehicle operation, would be contained within the existing disturbed road and utility easement. The final segment of the electrical run into the BMWD Station A facility meter and point of interconnection may be installed using horizontal boring up to 750 feet in length in order to avoid impacts to existing aboveground and near-surface utilities. The bored segment would require installation of 5-foot by 7-foot electrical service vaults at each terminus, the excavation for which would require three feet of additional space on each side of the bore pits. Temporary disturbance associated with vault installation (including equipment staging, excavation and stockpiling) would be up to 2,000 sf. Disturbance required to conduct the boring and install the vaults, including vehicle operation, would be contained within the existing disturbed road and utility easement.

During construction, water would be used for dust control, concrete mixing, and as drilling liquid for the horizontal boring (with the majority used for controlling fugitive dust). Water usage is estimated to be up to 37,000 gallons per day during active construction, supplied by BMWD via existing outlets

adjacent to the site and applied as needed to the site using 2,000-gallon water trucks. Portable restrooms would also be brought to the site during construction for worker use.

Operation

After construction, the proposed project would be automated to allow operation with no staffing present. Production and system health data, as well as onsite weather data, would be monitored remotely and gathered electronically. A Vegetation Management Plan would be developed and implemented to ensure that vegetation is maintained adequately to prevent negative impacts to adjacent properties from wildfire spreading, and to ensure no interference with on-site solar production. Periodic site maintenance and washing of the solar panels, which may be necessary to maintain efficiency, would occur on an as-needed basis and is anticipated to occur up to two times per year, depending on annual precipitation and vegetation growth. Such maintenance would require temporary staffing on site and use of a water truck. This annual maintenance would be completed by two workers over approximately three days, depending on what is needed. The trucks would obtain water from nearby BMWD facilities; approximately 30,000 gallons would be required to wash the entire solar field. Portable restrooms would be brought to the site during any maintenance activities. No onsite restroom facilities are included in the proposed project because the project site would not house any permanent employees. Additionally, no water service is proposed to the project site.

Decommissioning

At the end of the project lifespan of approximately 25 years, all facilities and infrastructure may be removed from the project site, and the land converted to other uses. Alternatively, the facility could be replaced or updated. To the maximum extent practicable, appropriate facilities and components would be recycled.

9. Surrounding Land Uses and Setting

Surrounding land is zoned for agricultural use and designated for agricultural use in the General Plan. The project site is surrounded by agricultural land to the south and east, with undeveloped hills to the north and west. Unpaved roadways, irrigation canals, and irrigation ponds support the agricultural uses of the surrounding land.

10. Other Public Agencies Whose Approval is Required

BMWD is the Lead Agency and the project is intended solely to serve BMWD energy needs (no net export of electricity). The generated power would directly offset energy usage for BMWD's water distribution system and existing facility (pumps and equipment at Station A, electrical water pump, system metering and monitoring equipment, switchgear, inverters, transformers, and solar tracking system on the solar parcel), therefore it is considered a permitted use in an A zone, as interpreted by the Kern County Planning and Natural Resources Department. Tesla shall obtain grading and building permits from Kern County, which is a ministerial approval and therefore is exempt from discretionary approval by the County.

Other responsible agencies whose approval may be required for the project include the following:

- San Joaquin Valley Air Pollution Control District (SJVAPCD): Rules and Regulations (Regulation VIII, Rule 8021, Rule 9510, Rule 4641)
- Regional Water Quality Control Board: Waste Discharge Requirements
- State Water Resources Control Board: NPDES Construction General Permit
- PG&E: Approval of interconnection to PG&E distribution lines

11. Native American Tribal Consultation

Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

Two Native American contacts have requested notification of projects under AB 52 from BMWWD, per a list request from the Native American Heritage Commission. BMWWD distributed AB 52 notification letters for the proposed project to the Tule River Indian Tribe and Wuksache Indian Tribe/Eshom Valley Band.

As of the end of the comment period, no responses to the AB 52 letters were received. Under AB 52, Native American tribes have 30 days to respond and request further project information and formal consultation. The 30-day window for the current project closed on August 15, 2019. Should any other tribes respond to the consultation request during the public comment period for this Initial Study, they will be provided to the decision makers at the hearing for approval of the project.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Less than Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

Determination

Based on 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 to 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 “less than significant with mitigation incorporated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

Berrenda Mesa Water District
Berrenda Mesa Water District Solar Project

- I find that although the proposed project could have a significant effect on the environment, because all potential 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.

Phillip D Nixon
Signature

8-23-19
Date

Phillip D Nixon
Printed Name

8-23-19
Title

Environmental Checklist

1 Aesthetics

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

Except as provided in Public Resources Code Section 21099, would the project:

a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project have a substantial adverse effect on a scenic vista?*

Neither the Kern County General Plan (2009) nor the Lost Hills General Plan (County of Kern 1978) identify any scenic vistas in or near the Lost Hills area. The project site is surrounded by fallow and cultivated agricultural fields, with the California Aqueduct traversing the area northwest of the site. The undeveloped hillsides to the west do not present a distinctive vista from the project site, nor is there a public view from these hillsides toward the site. Figure 5 provides exemplary views of adjacent agriculture to the southeast (top) and uncultivated land with the hillsides in the distance to the northwest (bottom).

Figure 5 Views from the Project Site



Aboveground solar arrays are allowed in Exclusive Agriculture zones when the power generated would not exceed the total demand (County of Kern 2019). Thus, the project would not be inconsistent with current uses on adjacent lands. The PV solar arrays and associated equipment would be no more than eight feet, a height that would not block scenic vistas, if any existed. Because there are no scenic vistas, however, there would be no impact from construction and operation of the proposed project.

NO IMPACT

- b. *Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

Even though portions of SR 33 is a state-designated scenic highway, designated sections are far from the project site, in Ventura County (Caltrans 2019). Furthermore, the site is over four miles from where SR 46 intersects Kecks Road, and more than eight miles from where SR 33 and Barker Road intersect. At these distances, the project site is not visible from nearby highways and construction and operation of the project would not affect any scenic or historic resources. The site itself does not contain significant scenic resources of any type. Additionally, the site does not contain and is not close to designated historic buildings (please refer to Section 5, *Cultural Resources*). Neither construction nor operation of the project would damage views of scenic resources from a state scenic highway. No impact would occur.

NO IMPACT

- c. *Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

The project is in a non-urbanized area surrounded by agricultural development and undeveloped open space. Few publicly accessible vantage points of the project site exist, with the nearest public paved roadway located where Keck's Road intersects the road to the Station A facility; however, this vantage point does not have a clear view of the proposed solar facility. Views of the interconnection route would not substantially change with the addition of the proposed power poles. The site is undeveloped agricultural land, with a basic network of unpaved roadways. This would be similar to other solar facilities in the area (none of which are adjacent to the project site), which are also adjacent to active agricultural land. Although this would represent a change in the visual character of the site, the solar arrays are consistent with the land use designation of the site. The proposed solar arrays would be a maximum of 8 feet in height, which would provide a transition in massing from the surrounding agricultural and undeveloped lands that contain no structures. The project would not obstruct public views of the surrounding landscape, including the hilly terrain to the northwest. Due to the limited nature of public views of the project site and consistency of proposed project facilities with the surrounding land uses, construction and operation of the proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?*

Implementation of the project would introduce a new source of light and glare during construction and operation. Mobile sources of light would come initially from construction equipment and worker vehicles, if they access the site at night; however, night work is not proposed as part of the project. During operation, worker vehicles may access the site after dark and produce limited light, but infrequently. Stationary sources of light could be introduced during construction, if temporary fixtures are installed to facilitate workspace operation or site safety. Project operation would introduce security lighting fixtures on a limited number of structures associated with the solar array.

The PV installation would introduce some glare, but the use of low-glare panels and limiting the height of the installation to no more than 8 feet in height would reduce the glare effects of the array for travelers on Kecks Road and Barker Road as well as SR 33 and SR 46.

The Kern County General Plan Land Use and Planning Element includes the following policy for industrial development:

Require that industrial uses provide design features such as screen walls, landscaping, increased height and/or setbacks, and lighting restrictions between the boundaries of adjacent residential land use designations so as to reduce impacts on residences due to light, noise, sound, and vibration. (County of Kern 2009)

As the project site and adjacent uses are zoned for intensive and extensive agriculture, no residential land use designations would be affected by project implementation and no equipment screening or similar design features would be necessary to comply with County code requirements. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

The Farmland Mapping and Monitoring Program indicates the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Department of Conservation [DOC] 2019a). It would not convert any lands thus indicated to non-agricultural use. There would be no impact to this issue area from project implementation.

NO IMPACT

- b. *Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?*

The project site is not under a Williamson Act contract (DOC 2013). The project site is zoned for agricultural use, and the development of a solar facility on the site is consistent with the allowable uses for the Extensive Agriculture zoning designation. Therefore, implementation of the project would have no impact.

NO IMPACT

- c. *Would the project 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. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*
- e. *Would the project 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?*

While the project would change the land use of the project site from agricultural land to solar facilities, it would not convert actively cultivated land to non-agricultural use as the land is not under this use currently. The project would not conflict with nor interfere with surrounding agricultural uses or undeveloped open space lands. No new residents would be introduced to the area, and operation of the solar facility would be compatible with surrounding agricultural operations, and can be decommissioned and removed at the end of its useful lifecycle and returned to agricultural use. The project site does not contain any trees and is not utilized as forest land or timberland. Construction and operation of the project would not result in the loss of forest land or conversion of forest land and/or timberland to non-forest use. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Air Quality Standards and Attainment

The project site is located within the San Joaquin Valley Air Basin (SJVAB), which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). As the local air quality management agency, the SJVAPCD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, an area, or air basin, is classified as being in “attainment” or “nonattainment.” Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-attainment. The SJVAB is designated as a non-attainment area for federal and State ozone, State PM₁₀ (particulate matter up to 10 microns in size), and State and federal PM_{2.5} (particulate matter up to 2.5 microns in size) standards (SJVAPCD 2019a). The health effects associated with criteria pollutants for which the Basin is in non-attainment are described in Table 1.

Table 1 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter (PM ₁₀)	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma). ^a
Suspended particulate matter (PM _{2.5})	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma. ^a

^a More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: EPA, Air Quality Criteria for Particulate Matter, October 2004.

Source: USEPA, <http://www.epa.gov/airquality/urbanair/>

Air Quality Management

2007 PM₁₀ Maintenance Plan

The PM₁₀ Maintenance Plan and Request for Redesignation builds upon prior PM₁₀ Plans published and implemented by SJVAPCD. The plan sets the target maintenance year to 2020. The plan models the projected emission inventory changes through 2030 to demonstrate that the valley would maintain compliance 10 years after re-designation. The plan includes contingencies to promptly correct any NAAQS violations. (SJVAPCD 2007)

2016 Ozone Plan

SJVAPCD adopted an Ozone Plan in 2016 to address the federal mandates related to ozone air quality standards and provide regulatory measures required by the district to address its exceedance of the ozone standard. The Ozone Plan includes the progress the District has made to lower ozone concentrations since 1995, an attainment strategy (including regulations, rules, and strategies), reasonably available control measures, and contingencies for future nonattainment. (SJVAPCD 2016)

2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards

The SJVAPCD attainment strategy in this plan builds upon comprehensive strategies already in place from previously adopted SJVAPCD attainment plans and measures. The SJVAPCD's multi-faceted approach to reducing emissions in the San Joaquin Valley for this Plan consists of a combination of innovative regulatory and nonregulatory measures. In addition to reducing direct emissions of PM_{2.5}, this Plan focuses on reducing NO_x emissions, which is a predominant pollutant not only in the

formation of PM_{2.5} in the San Joaquin Valley, but is also the focus of the SJVAPCD’s ozone reduction strategies. (SJVAPCD 2018)

2018 San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan

The purpose of this plan is to achieve emissions reductions necessary to attain federal ozone and PM_{2.5} standards within the San Joaquin Valley, as part of the greater implementation of the State Implementation Plan (SIP) for the entirety of California.

Air Emission Thresholds

Table 2 presents the SJVAPCD significance thresholds for construction and operational-related criteria air pollutant and precursor emissions being used for the purposes of this analysis. These represent the levels at which a project’s individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin’s existing air quality conditions. For the purposes of this analysis, the proposed project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 2.

Table 2 Air Quality Thresholds of Significance (tpy)

Pollutant/ Precursor	Maximum Operational Annual Emissions	Maximum Construction Emissions
ROG	10	10
NO _x	10	10
SO _x	27	27
CO	100	100
PM ₁₀	15	15
PM _{2.5}	15	15

Notes: tpy = tons per year; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; CO = carbon monoxide; SO_x = oxides of sulfur.

Source: SJVAPCD 2015a.

The SJVAPCD also provides the following Toxic Air Contaminant (TAC) air quality thresholds of significance:

- Carcinogens: Maximally exposed individual risk is equal to or greater than 20 in one million; and
- Non-carcinogens: (Acute and Chronic) Hazard Index is equal to or greater than 1 for the maximally exposed individual (SJVAPCD 2015b).

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The SJVAPCD maintains three air quality management plans, focused on PM₁₀, ozone, and PM_{2.5}. The proposed project would not conflict with or obstruct the implementation of the air quality management standards. Standards set by the Air District, CARB, and federal agencies relating to the proposed project would continue to apply. A Fugitive Dust Control Plan would be submitted to the

Air District to comply with SJVAPCD Regulation VIII Rule 8021 prior to the initiation of construction. An Indirect Source Review (ISR) application and Air Impact Analysis (AIA) would be filed with the Air District to address NO_x emissions from construction. As such, the proposed project would not conflict with an air quality plan and this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The proposed project would generate short-term emissions associated with project construction and long-term emissions associated with operation of the solar array. Construction project emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. CalEEMod was developed by the South Coast Air Quality Management District and is used by jurisdictions throughout the state to quantify criteria pollutant emissions.

For the purposes of modeling, the analysis relied upon the following assumptions:

- Construction would begin in April 2020 and last six months until October 2020
- The project would import 250 cubic yards of fill
- The project would import 2,000 cubic yards of gravel (estimated) for the access, perimeter, and interior roads
- The project would not require paving on-site
- Water would be applied twice daily for fugitive dust control

A full list of assumptions is provided in in Appendix A.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust and exhaust emissions from heavy construction vehicles. The grading phase of the proposed project would involve the largest use of heavy equipment and generation of fugitive dust. A maximum of 28 construction worker trips would be generated each day during construction and to be conservative, this estimate was applied to all phases of construction. Table 3 summarizes maximum daily pollutant emissions during construction of the proposed project.

Table 3 Construction Emissions Compared to SJVAPCD Thresholds

	Estimated Maximum Emissions					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Maximum (tons/year)	0.1	1.7	1.7	<0.1	0.9	0.1
SJVAPCD Thresholds (tons/year)	10	10	27	100	15	15
Threshold Exceeded?	No	No	No	No	No	No

ROG: Reactive Organic Compounds; CO: Carbon Monoxide; SO_x: sulfur oxide; NO_x: nitrogen oxides; PM₁₀: particulate matter less than 10 microns in size; PM_{2.5}: particulate matter less than 2.5 microns in size

See Appendix A for modeling details and CalEEMod results.

As shown in Table 3, project construction emissions would not exceed the SJVAPCD’s regional thresholds. Therefore, impacts to regional air quality and local receptors due to construction emissions would be less than significant.

Operational Emissions

Operational emissions are typically comprised of mobile source emissions, emissions associated with energy consumption, and area source emissions. The proposed project would result in up to approximately 10 new vehicle trips per year for project maintenance (i.e., cleaning and inspecting the solar array). Operational emissions associated with the proposed project are shown in Table 4.

Table 4 Operational Emissions Compared to SJVAPCD Thresholds

	Estimated Maximum Emissions					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Maximum (tons/year)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SJVAPCD Thresholds (tons/year)	10	10	27	100	15	15
Threshold Exceeded?	No	No	No	No	No	No

ROG: Reactive Organic Compounds; CO: Carbon Monoxide; SO_x: sulfur oxide; NO_x: nitrogen oxides; PM₁₀: particulate matter less than 10 microns in size; PM_{2.5}: particulate matter less than 2.5 microns in size
 See Appendix A for modeling details and CalEEMod results.

As shown in Table 4, project operational emissions would not exceed the SJVAPCD’s regional air quality thresholds. The proposed project would not generate substantial operational emissions and emissions would not exceed the SJVAPCD thresholds for any criteria pollutant. Therefore, operational emissions would have a less than significant impact on regional air quality.

LESS THAN SIGNIFICANT IMPACT

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as land uses that are more likely to be used by these population groups and include health care facilities, retirement homes, school and playground facilities, and residential areas. The nearest sensitive receptors to the project site are rural residences, the closest being approximately 3.3 miles east of the project site. As discussed under item (b), the proposed project’s construction emissions would not exceed the SJVAPCD regional thresholds, which are designed to be protective of public health. Residences are not near the project site and therefore would not be exposed to substantial concentrations of pollutants from construction vehicles.

Traffic-congested roadways and intersections have the potential for the generation of localized CO levels (i.e., CO hotspots). In general, CO hotspots occur in areas with heavy traffic congestion at intersections. The proposed project would result in approximately 28 daily worker trips during construction and up to approximately 12 additional annual trips on area roadways, which would not substantially increase the volume of traffic on local roadways. Therefore, the proposed project would not result in CO hotspots on local roadways. The proposed project would not expose

sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

The SJVAPCD identifies several land use types as being odor producing: wastewater treatment facilities, sanitary landfill, transfer station, composting facility, petroleum refinery, asphalt batch plant, chemical manufacturing, fiberglass manufacturing, painting/coating operations, food processing facility, feed lot/dairy, and rendering plant (SJVAPCD 2019b). The project would install a solar facility on the project site, which is not considered an odor-generating land use. While the site is adjacent to agricultural land, the project would not introduce residents to the site or otherwise introduce conflicts between the proposed land use and adjacent land use with respect to odor generation. Construction would result in the generation of odors from diesel-powered equipment; however, construction would be temporary and no residential sensitive receptors are located in the immediate vicinity of the site (the closest receptor is 3.3 mile to the east).

NO IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Data used for this analysis included the Biological Constraints Analysis (Rincon 2017), database research on special-status resource occurrences from the California Department of Fish and Wildlife

(CDFW) California Natural Diversity Database (CNDDDB) (CDFW 2019a), and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2019). Other resources included the California Native Plant Society’s *Inventory of Rare and Endangered Plants of California* (CNPS 2019); CDFW’s *Special Animals List* (CDFW 2018); and CDFW’s *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2019b). Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data in the area were also examined. Data obtained from a field reconnaissance survey, including blunt-nosed leopard lizard (*Gambelia sila*) protocol-level survey and habitat assessment conducted on January 25, 2017, and a burrowing owl (*Athene cunicularia*) protocol-level survey and habitat assessment conducted on April 12, 2017 were also utilized for this analysis.

The initial field reconnaissance survey conducted on January 25, 2017 (Rincon 2017) identified potentially significant impacts, either directly or through habitat modifications, to species identified as having special status in local or regional plans, policies, or regulations, or by the CDFW or USFWS, unless mitigation is incorporated. Special-status species are those plants and animals: 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS or National Marine Fisheries Service under the Federal Endangered Species Act; 2) listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act or Native Plant Protection Act; 3) recognized as Species of Special Concern (SSC) by the CDFW or 4) occurring on lists 1 and 2 of the California Native Plant Society (CNPS) Rare Plant Ranking system. Additionally, the survey identified potential impacts to nesting birds afforded protection under Migratory Bird Treaty Act and/or California Fish and Game Code (CFGC).

A search of CNDDDB for any special-status species in the nine quads surrounding the project site was conducted initially in January 2017 and updated on July 8, 2019. The CNDDDB query revealed records of 12 special-status plant species (Table 5) and 17 special-status animal species (Table 6) within the nine-quad search area.

Table 5 Special Status Plant Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Atriplex coronata</i> var. <i>vallicola</i> Lost Hills crownscale	None/None 1B.2	Chenopod scrub, valley and foothill grassland, and vernal pools. In powdery, alkaline soils that are vernal moist with <i>Frankenia</i> , <i>Atriplex</i> spp. and <i>Distichlis</i> . From 150 to 2,900 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Caulanthus californicus</i> California jewelflower	FE/FE 1B.1	Chenopod scrub, valley and foothill grassland, pinyon and juniper woodland. Sandy soils. From 200 to 6,100 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Caulanthus lemmonii</i> Lemmon’s jewelflower	None/None 1B.2	Pinyon and juniper woodland, valley and foothill grassland. From 250 to 5,200 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Deinandra halliana</i> Hall's tarplant	None/None 1B.2	Cismontane woodland, chenopod scrub, valley and foothill grassland. Reported from a variety of substrates including clay, sand, and alkaline soils. From 500 to 3,000 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Delphinium recurvatum</i> recurved larkspur	None/None 1B.2	Chenopod scrub, valley and foothill grassland, cismontane woodland. On alkaline soils, often in valley saltbush or valley chenopod scrub. From sea level to 2,600 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Eremalche parryi</i> ssp. <i>kernensis</i> Kern mallow	FE/None 1B.2	Chenopod scrub, valley and foothill grassland, pinyon and juniper woodlands. On dry, open sandy to clay soils; usually within valley saltbush scrub; often at edge of balds. From 200 to 4,200 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Eriogonum temblorense</i> Temblor buckwheat	None/None 1B.2	Valley and foothill grassland. Barren clay or sandstone substrates. From 750 to 2,800 feet.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Layia munzii</i> Munz's tidy-tips	None/None 1B.2	Chenopod scrub, valley and foothill grassland. Hillsides, in white-gray alkaline clay soils, with grasses and chenopod scrub associates. From 150 to 2,500 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Lepidium jaredii</i> ssp. <i>jaredii</i> Jared's pepper-grass	None/None 1B.2	Valley and foothill grassland. Alkali flats and sinks. Sandy, alkaline, sometimes adobe soils. From 1,100 to 3,300 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Madia radiata</i> showy golden madia	None/None 1B.1	Valley and foothill grassland, cismontane woodland. Mostly on adobe clay in grassland or among shrubs. From 250 to 4,000 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.

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Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Monolopia congdonii</i> San Joaquin woollythreads	FE/None 1B.2	Chenopod scrub, valley and foothill grassland. Alkaline or loamy plains; sandy soils, often with grasses and within chenopod scrub. From 180 to 2,800 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.
<i>Tropidocarpum californicum</i> King's gold	None/None 1B.1	Chenopod scrub. From 200 to 600 feet elevation.	Not expected	Marginal suitable habitat present, but project site is regularly disturbed/disked.

Regional Vicinity refers to within a 9-quad search radius of site.
 FE = Federally Endangered
 CRPR (CNPS California Rare Plant Rank):
 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)

Table 6 Special Status Animal Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	FT/ ST WL	Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Low	No wetland habitats in the vicinity of the project site.
<i>Spea hammondi</i> western spadefoot	None/None SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Low	No wetland habitats in the vicinity of the project site.
Reptiles				
<i>Arizona elegans occidentalis</i> California glossy snake	None/None SSC	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Gambelia sila</i> blunt-nosed leopard lizard	FE/SE 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.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked. Not observed during protocol surveys.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Masticophis flagellum ruddocki</i> San Joaquin coachwhip	None/None SSC	Open, dry habitats with little or no tree cover. Valley grassland and saltbush scrub in the San Joaquin Valley. Requires mammal burrows for refuge and oviposition sites.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Phrynosoma blainvillii</i> coast horned lizard	None/None 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.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
Birds				
<i>Agelaius tricolor</i> tricolored blackbird	None/ST SSC	Requires open water, protected nesting substrate, and foraging areas with insect prey.	Not expected	No foraging or nesting habitat in the vicinity of the project site.
<i>Athene cunicularia</i> burrowing owl	None/None 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.	Low	No owls, signs, or suitable burrows observed during surveys.
<i>Buteo swainsoni</i> Swainson's hawk	None/ ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and 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	Marginal foraging habitat present at project site, marginal nesting habitat in vicinity.
<i>Charadrius montanus</i> mountain plover	None/None SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Lanius ludovicianus</i> loggerhead shrike	None/None SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs for nesting.	Low	Marginal foraging habitat present at project site, nesting habitat in vicinity.

Berrenda Mesa Water District
Berrenda Mesa Water District Solar Project

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Mammals				
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	None/ ST	Western San Joaquin Valley from 200 to 1200 feet elevation. On dry, sparsely vegetated loam soils. Digs burrows or uses kangaroo rat burrows. Needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Dipodomys ingens</i> giant kangaroo rat	FE/FE	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Dipodomys nitratoides brevinasus</i> short-nosed kangaroo rat	None/None 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.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Perognathus inornatus</i> San Joaquin Pocket Mouse	None/None	Grassland, oak savanna, and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills south to the Mojave Desert. Associated with fine-textured, sandy, friable soils.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked.
<i>Taxidea taxus</i> American badger	None/None 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.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked. No burrows or sign observed during field surveys.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing and suitable prey base.	Low	Suitable habitat present in the vicinity of the project site, but project site is regularly disturbed/disked. No burrows or sign observed during field surveys.
Regional Vicinity refers to within a 9-quad search radius of site.				
FE = Federally Endangered FT = Federally Threatened				
SE = State Endangered ST = State Threatened SSC = CDFW Species of Special Concern				

- a. *Would the project 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?*

The project site consists of a 60-acre area in which a solar array will be developed, a linear utility interconnection between the array and the Berrenda Mesa Water District Station A approximately 1.5 miles to the northwest, and a new access road extending approximately 1,600 feet south of the array and then east approximately 2,670 feet across the north side of APN 057-070-43 and a small portion of the northeast corner of APN 057-070-42 to connect to existing farm roads. The location of the array is zoned Agricultural per the County of Kern Zoning Maps. It is a fallow agricultural field maintained by disking up to twice per year. Historic aerial imagery (Google 2019) indicates that this maintenance regime has been employed consistently since at least 1994. The interconnection will follow an existing, disturbed roadway and utility easement. The access road will be located within the same fallow agricultural parcel as the array and connect to existing disturbed farm roads. The landscape surrounding the project site is rural, and land uses include livestock grazing and pistachio orchards. The California Aqueduct is located approximately 1.5 miles northwest of the site.

In February 2017, Rincon Consultants, Inc. prepared a Biological Constraints Analysis (BCA), including a literature review and field reconnaissance survey to document existing site conditions, the potential presence of special-status biological resources (including plant and wildlife species), observed plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The complete BCA is contained in Appendix B of this document. In addition, Rincon conducted field surveys for burrowing owl in April 2017 and blunt-nosed leopard lizard in May 2017, and the results of those surveys are provided in Appendix C and Appendix D, respectively. The special-status species addressed below are those evaluated previously for potential to occur at the project site and potential to be impacted by project activities.

Plants

The vegetation within the project site consists of ruderal, weedy species, primarily Russian thistle (*Salsola tragus*) and annual grasses. The regular disking of the site prevents the establishment of special-status plant species. Allscale scrub habitat is present immediately adjacent to the project site on the north and west sides, and occurs along the length of the interconnection. Allscale scrub provides suitable habitat for numerous special-status plant species including, recurved larkspur (*Delphinium recurvatum*), kern mallow (*Eremalche parryi ssp. kernensis*), San Joaquin woollythreads (*Monolopia congdonii*), and California jewelflower (*Caulanthus californicus*). However, this habitat type does not occur in the project site. Construction activities related to the interconnection would be contained within an existing disturbed road and utility easement. Therefore, no impacts to special-status plant species are anticipated.

Reptiles

The allscale scrub habitat located along the interconnection route and at Station A provides suitable habitat for blunt-nosed leopard lizard (BNLL; *Gambelia sila*), which is federally-listed as Endangered and State-listed as Endangered and Fully Protected. During the BNLL habitat assessment conducted in May 2017, small mammal burrows (approximately 1-2 inches in diameter) were found near the Station A facility. These burrows could support BNLL, but no signs of BNLL were observed. The area where the solar array will be developed does not contain suitable habitat for BNLL. No burrows were observed there, and the active agricultural use and/or disking of that area are expected to preclude the

development of burrows. Protocol-level surveys for BNLL were conducted between June and August in 2017. The surveys were conducted in accordance with CDFW's *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFW 2004). No BNLL were observed during the surveys.

Because the area where the solar array will be developed does not contain suitable vegetation or burrows, BNLL are not expected to occur there. However, BNLL may occur along the interconnection and in the vicinity of Station A where elements of suitable habitat are present. If BNLL are present, project activities may result in significant impacts through direct mortality or loss of burrows and habitat. The survey and avoidance measures included as Mitigation Measure BIO-1 would reduce impacts to the species from construction activities to less than significant.

Birds

The project site provides suitable nesting habitat for ground-nesting birds such as western meadowlark (*Sturnella neglecta*) and horned lark (*Eremophila alpestris*), which were observed at the site. The adjacent allscale scrub and nearby pistachio orchards also provide suitable nesting habitat. Shrub and ground nesting birds may be impacted by project activities if they occur during the nesting season. Impacts to common nesting birds or raptor nests as a result of the project development and construction activities do not rise to the level of significance under CEQA; however, destruction of birds, eggs, and nestlings is prohibited under federal and state law and must be avoided.

Bird nesting typically occurs between February 1 and August 31, but varies depending upon the species and climatic conditions. Nesting birds and raptor nests are protected by CFGC Section 3503 and 3503.5. Most birds are also regulated under the Federal Migratory Bird Treaty Act (MBTA) of 1918. Under the provisions of the Migratory Bird Treaty Act, it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities. At the State level, the CFGC extends protection to non-migratory birds identified as resident game birds (CFGC Section 3503) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (CFGC Section 3503.5). Mitigation Measure BIO-2 requires pre-construction/grading surveys if vegetation clearing or other project construction is initiated during the bird breeding season. This measure would ensure compliance with federal and state laws protecting migratory birds.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a CDFW Species of Special Concern that is also protected as a migratory raptor under CFGC and the MBTA. Rincon conducted a habitat assessment for burrowing owl in April, 2017 and conducted breeding season surveys for the species between May and July, 2017. The surveys adhered to the methodology described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). No burrowing owls, their sign, or suitable burrows were observed during any of the surveys. Habitat within the project site is mostly not suitable for burrowing owl; at the time of the burrowing owl surveys the weeds and grasses covering much of the site were 1-2 feet tall. As more than one year has passed since the previous surveys for burrowing owl, a new round of surveys (breeding season or non-breeding season, as appropriate) will be conducted (see Mitigation Measure BIO-3) in accordance with the *Staff Report on Burrowing Owl Mitigation*.

Although no burrowing owls or their sign have been observed at the project site, the allscale scrub located adjacent to the site and along the interconnection does provide suitable habitat. If

burrowing owls are present, project activities may result in significant impacts through direct mortality, loss of burrows, or failure of nests. The survey and avoidance measures in Mitigation Measure BIO-3 would reduce impacts to the species to a level of less than significant.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a state Threatened species that is also protected as a migratory raptor under CFGC and the MBTA. The site provides marginal foraging habitat for Swainson's hawk. The scarcity of vegetation and burrows indicate a limited prey base. However, the adjacent pistachio orchards may provide potential nesting habitat for the species. If construction activities extend into the nesting/breeding season, potential impacts to Swainson's hawk could occur, including failure of nests due to project-related disturbance. The survey and avoidance measures in Mitigation Measure BIO-4 would reduce impacts to the species to a level of less than significant.

Mammals

The San Joaquin kit fox is federally listed as endangered and State listed as threatened. No kit foxes or their sign were observed during the initial site reconnaissance survey or additional biological surveys. The regular disking of the project site precludes the development of burrows there. However, burrows may be developed in the allscale scrub habitat adjacent to the project site and along the interconnection to Station A. Additionally, San Joaquin kit fox could occupy the site as transients, searching for prey and using the site as a movement corridor. If San Joaquin kit fox are present, project activities may result in significant impacts through direct mortality or loss of burrows. Given that kit fox have been documented within five miles of the project site, the USFWS (2011) Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (Mitigation Measure BIO-5) will be implemented to reduce the potential impact to the species to a level of less than significant.

The allscale scrub habitat adjacent to the site to the southwest provides suitable habitat for special-status small mammal species, including giant kangaroo rat, and Nelson's antelope squirrel, however, this habitat type does not occur within the site. Therefore, impacts to these species would be less than significant.

Mitigation Measures

The following mitigation measures would be required to reduce impacts to biological resources to a less than significant level.

BIO-1 Blunt-nosed Leopard Lizard Surveys and Avoidance

- Initial clearing or construction activities along the interconnection route and at Station A shall be prioritized to occur during the active period for BNLL (April 15 through October 15) to the extent feasible.
- A qualified biologist shall survey for BNLL along the interconnection route and at Station A within 24-hours prior to the start of clearing or construction activities. The survey shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If active burrows or egg clutch sites are identified during the survey, the biologist will establish, maintain, and monitor 50-foot buffers around the burrows and/or egg clutch sites. Project activities within the buffers will be prohibited until the eggs have hatched and/or BNLL have been allowed to leave the project area, as determined by the biologist.

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- A qualified biologist shall monitor all clearing or earth disturbing activities occurring along the interconnection route and at Station A. If a BNLL is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the lizard will not be harmed. Any BNLL sightings and any incidental take shall be reported to the USFWS immediately by telephone at (916) 414-6600.
- Construction personnel shall receive a USFWS-approved worker environmental awareness program (WEAP). This training will instruct workers to recognize blunt-nosed leopard lizard and their habitat(s).
- Project-related vehicles shall observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways. Off-road traffic outside of designated project areas should be prohibited.
- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from a construction or project site.
- No pets, such as dogs or cats, shall be permitted on the project site to prevent harassment, mortality of blunt-nosed leopard lizard.

BIO-2 Nesting Birds Surveys and Avoidance

- If initial clearing or construction activities take place during the bird nesting season (generally February 1 through August 31, but variable based on seasonal and annual climatic conditions), a nesting bird survey will be performed by a qualified biologist within seven days of such activities to determine the presence/absence, location, and status of any active nests on-site or within 100 feet of the site.
- If active nests (those containing eggs, nestlings, or associated with dependent fledglings) are found on-site, a construction buffer of 500 feet for nesting raptors or threatened or endangered species and 100 feet for all other nesting birds shall be implemented around each nest and demarcated with fencing or flagging. Active nests shall be monitored at least once per week by a qualified biologist. No project activity shall occur inside a nest buffer until the biologist determines that the nest is no longer active. The size of buffers may be reduced if a qualified biologist concludes that nestlings, fledglings, or adults at the nest would be tolerant of project activities at a lesser distance. Initial work within reduced buffers shall be monitored by a qualified biologist to confirm that the nesting birds are not disturbed.
- If no nesting birds are observed during pre-construction surveys, no further actions would be necessary.

BIO-3 Burrowing Owl Surveys and Avoidance

- Breeding season and/or non-breeding season surveys for burrowing owl shall be conducted within 14 days prior to project activities following the methods described in the CDFW *Staff Report on Burrowing Owl Mitigation*. If no burrowing owls are observed, no further actions would be necessary.
- If burrowing owls are observed on-site or within 500 feet of the site, a no-disturbance buffer shall be established around occupied burrows. The buffer size may range from 150 feet to 650 feet depending on the time of year and the level of construction activity.
- A qualified biologist shall monitor the nest to ensure construction activities will not adversely impact the nesting birds and determine when the burrow is no longer occupied.

- If construction activities cannot avoid the active burrowing owl nest, CDFW will be consulted. If necessary, burrowing owls may be passively relocated from burrows after an exclusion plan is prepared and approved by the CDFW.

BIO-4 Swainson's Hawk Surveys and Avoidance

- If construction activities occur between March 1 and September 15, a preconstruction survey shall be conducted for active Swainson's hawk nests within 0.5 mile of the project site.
- If nesting Swainson's hawks are detected within 0.5 mile of project activities, an appropriate avoidance buffer shall be established 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 hawk behavior at the nest. Standard avoidance buffers will be 500 feet, but may be reduced at the discretion of a qualified biologist.

BIO-5 San Joaquin Kit Fox Surveys and Avoidance

- Preconstruction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys will identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens will be determined and mapped according to the San Joaquin kit fox survey protocol (USFWS 1999).¹ Written results of preconstruction surveys must be received by the USFWS within five days after survey completion and prior to the start of ground disturbance and/or construction activities, even if survey findings are negative.
- Project-related vehicles shall observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction shall be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project 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 shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. 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 Service and the California Department of Fish and Wildlife shall be contacted.
- Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct

¹ While this USFWS Survey Protocol is specific to the northern range of San Joaquin kit fox, it is used here for a conservative approach, as the project site is within the southern range for San Joaquin kit fox.

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supervision of a qualified biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from a construction or project site.
- No firearms shall be allowed on the project site.
- No pets, such as dogs or cats, shall be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
- Use of rodenticides and herbicides in project areas shall 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 shall be used because of a demonstrated lower risk to kit fox.
- Project personnel shall receive WEAP training that includes the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to project personnel and anyone else who may enter the project site.
- A representative shall be appointed who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
- Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, CDFW, and revegetation experts.
- Any contractor, employee, or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045.
- The Sacramento USFWS office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW should be contacted at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (916)-358-2900.
- New sightings of kit fox shall be reported to the California Natural Diversity Database. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox

was observed should also be provided to the USFWS at the address below. Any project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the USFWS at: Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846, (916) 414-6620 or (916) 414-6600.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

- b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

No habitat of quality to support native riparian plant/wildlife species is present. The sensitivity status of vegetation communities is determined by multiple criteria including restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities, or are particularly susceptible to disturbance. These communities are considered sensitive whether or not they have been disturbed. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in the CNDDDB. Similar to special-status plant and wildlife species, vegetation alliances are ranked 1 through 5 based on NatureServe’s (2010) methodology.

No sensitive vegetation communities are present within the project site. The sensitive allscale scrub vegetation community is present adjacent to the site (north and west). This vegetation classification is derived from the Manual of California Vegetation (Sawyer et. al. 2009), and is considered a synonym of the Valley Saltbush Scrub listed as a sensitive vegetation community by CDFW. Allscale scrub provides suitable habitat for numerous special-status plant and wildlife species. However, the habitat type does not occur within the project site itself, and construction activities related to the interconnection would be contained within an existing disturbed road and utility easement.

NO IMPACT

- c. *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means?*

No potentially jurisdictional waters or wetlands were observed within the project site. Therefore, no impacts have been identified and no mitigation is required.

NO IMPACT

- d. *Would the project 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?*

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. Wildlife movement corridors are considered sensitive by many resource and conservation agencies.

The project site is surrounded by undeveloped lands through which wildlife can currently move relatively unimpeded. Wildlife may also move through the project site, though lack of food and cover would limit the number and species of wildlife likely to be present. The site does not contain any natural drainages that would facilitate wildlife movement. Given that the site is disked at least twice a year for vegetation maintenance and has been used in the past for agriculture, it is unlikely to serve an important role in facilitating wildlife movement. Additionally, fencing installed as part of the project would be “wildlife-friendly,” allowing for free movement of wildlife across the fence, per County standards. Therefore, development of the project would have a less than significant impact on the movement of any wildlife species or established resident or migratory wildlife corridors.

LESS THAN SIGNIFICANT IMPACT

- e. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The project site is located in unincorporated Kern County, California. The project does not conflict with any local policies or ordinances protecting biological resources.

No trees protected by Kern County through either policy or ordinance are present within the project site. No impacts have been identified and no mitigation is required.

NO IMPACT

- f. *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The property is located within the Habitat Conservation Plan (HCP) boundary of the Kern County Valley Floor HCP, which is currently in the planning phase. The project site is not located within any Natural Community Conservation Plan as indicated by the USFWS Critical Habitat portal or CDFW BIOS. No critical habitat is present within the vicinity of the project site. The project would not conflict with any adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impacts have been identified.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The analysis in this section is based on the Cultural Resources Technical Report prepared for the project by Rincon Consultants, Inc. which is included as Appendix E. The Cultural Resources Technical Report documented the results of the tasks performed by Rincon, which included a cultural resources records search and field survey. The analysis in this section has been prepared in accordance with Section 15064.5 of the State CEQA Guidelines.

The significance of cultural resources and impacts to those resources is determined by whether or not those resources can increase our collective knowledge of the past. The primary determining factors are site content and degree of preservation.

For the purpose of this analysis, a significant impact would occur if physical changes to these resources would result in the following conditions, listed in Appendix G of the State CEQA Guidelines:

- 1) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5
- 2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5
- 3) Disturb any human remains, including those interred outside of formal cemeteries

A “substantial adverse change” in the significance of a historical resource is defined as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” State CEQA Guidelines Section 15064.5(b) states the significance of an historical resource is “materially impaired” when a project does any of the following:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historical Resources

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources or its identification in an historical resources survey, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA

State CEQA Guidelines Section 15064.5 also states the term “historical resources” shall include the following:

- 1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (Public Resources Code [PRC] Section 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et. seq.).
- 2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- 3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be an historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be “historically significant” if the resource meets the criteria for listing in the California Register of Historical Resources [CRHR] (PRC Section 5024.1, Title 14 CCR, Section 4852) as follows:
 - Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
 - Is associated with the lives of persons important in our past
 - 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
 - Has yielded, or may be likely to yield, information important in prehistory or history (State CEQA Guidelines Section 15064.5)

Properties listed on the National Register of Historic Properties (NRHP) are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can also include properties designated under local ordinances or identified through local historical resource surveys.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

As a result of the cultural resources assessment, no historical resources were located within the project site. Although P-15-015820, California Aqueduct Milepost 279.44, is located outside of the project area, it is directly adjacent to the associated interconnection route. Construction of the interconnection route would include the installation of utility poles every 125 to 150 feet, with the construction zone located outside the California Aqueduct historic resource area. As such, no

properties require evaluation for listing on the CRHR or as a historic landmark, site of merit, point of interest, or district. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

No archaeological resources were identified within or adjacent to the project site by the cultural resources study. One previously recorded prehistoric archaeological resource (P-15-003811) was located outside of the project site; however, it was not listed or eligible for NRHP/CRHR. The lack of surface evidence of archaeological resources within the project site does not preclude their subsurface existence. However, the absence of substantial prehistoric or historic period archaeological resources within the immediate vicinity, along with the existing level of disturbance in the project site, suggest the area exhibits a low sensitivity for buried archaeological deposits. Nevertheless, there is still a potential for subsurface archaeological resources to be discovered during project construction. With implementation of the following mitigation measure, potential impacts related to cultural resources would be reduced to a less than significant level.

Mitigation Measures

CUL-1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- c. *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner would notify the Native American Heritage Commission (NAHC), which would determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

LESS THAN SIGNIFICANT IMPACT

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6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Energy consumption accounts for energy consumed during construction and operation of the proposed project, such as fuel consumed by vehicles and electricity consumed for power. The analysis of energy consumption herein involves the quantification of anticipated vehicle and equipment fuel and electricity consumption during construction and operation of the proposed project, to the extent feasible, as well as a qualitative discussion of the efficiency, necessity, and wastefulness of that energy consumption.

a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

The proposed project would install solar arrays, providing renewable electrical generation at the project site and reducing BMWWD’s overall reliance on non-renewable energy sources. The new solar arrays would generate approximately 1,300 MWh per year.

The proposed project would involve the use of energy during construction and operation of the new solar facilities. Energy use during construction would be primarily from fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary grid power may also be provided during construction at Station A. Table 7 summarizes the anticipated energy consumption from construction equipment and vehicles, including construction worker trips to and from the project site. As shown therein, construction of the proposed project would require approximately 2,607 gallons of gasoline and approximately 28,555 gallons of diesel fuel. Additionally, operation of the proposed project would require approximately 15 gallons of gasoline and approximately 11 gallons of diesel fuel annually.

Table 7 Energy Use during Project Construction and Operation

Source	Fuel Consumption (gallons)	
	Gasoline	Diesel
Construction Equipment & Hauling Trips	–	28,555
Construction Worker Vehicle Trips	2,607	–
Operational Vehicle Trips (Annual)	15	11

See Appendix A for CalEEMod default values for fleet mix and average distance of travel, and Appendix F for energy calculation sheets.

Operation of the proposed project would generate electricity, and would not consume natural gas or electricity. Overall, operation of the proposed project would result in consumption of fuel from vehicle trips alone. The installation of solar arrays on the project site would reduce the overall non-renewable electricity usage of BMWD. Therefore, construction and operation of the proposed project would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Table 8 provides energy efficiency goals and policies provided in the Kern County General Plan (County of Kern 2009) and 2017 Scoping Plan (CARB 2017) and describes the proposed project’s consistency with these policies. These policies are being used to determine level of significance as BMWD does not have such policies and the project is located within the jurisdiction of Kern County.

Table 8 Project Compliance with Energy Efficiency Goals and Policies

Energy Efficiency Goal or Policy	Project Consistency
County General Plan Energy Element	
General Policy 7. The processing of all discretionary energy project proposals shall comply with California Environmental Quality Act (CEQA) Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.	Consistent. This CEQA document was prepared as part of the project consideration process.
General Policy 8. The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.	Consistent. Please refer to Section 4, <i>Biological Resources</i> , regarding potential impacts to fish, wildlife, and botanical resources.
General Policy 10. The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent. Please refer to Section 13, <i>Noise</i> , regarding potential noise impacts from construction and operation of the project. Per the conclusions provided therein, further acoustical analysis is not required.
Solar Goal. Encourage safe and orderly commercial solar development.	Consistent. The project site is located at the northwestern corner of an agricultural area located northwest of State Route 46 (Paso Robles Highway) and West Side Highway. There are no conflicting land uses surrounding the project site that would be adversely affected by the installation of a solar facility. Please refer to the analysis provided in this IS-MND regarding the potential environmental effects of the project.
Solar Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.	Consistent. The project would reduce the imported energy demand of BMWD's Pump Station A, which would in turn reduce the fossil fuel demand and reduce air quality emissions from fossil fuel extraction.
Solar 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.	Consistent. Please refer to the analysis provided in this IS-MND regarding the potential environmental effects of the project, including Section 9, <i>Hazards and Hazardous Materials</i> , Section 15, <i>Public Services</i> , and Section 20, <i>Wildfire</i> .
Solar Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.	Consistent. The project site was previously used for agriculture and is disturbed. The interconnection route is located between two undeveloped areas; however, the route itself has been disturbed by California Aqueduct development. Please refer to Section 4, <i>Biological Resources</i> , regarding occurrences of state- or federally-protected plant and wildlife species on the site.
California Air Resources Board 2017 Scoping Plan	
Electricity Goal 2: Reduce fossil fuel use.	Consistent. The proposed project includes the installation of solar arrays to reduce BMWD's demand on PG&E energy services.

As shown in Table 8, the proposed project would be consistent with applicable energy efficiency goals and policies. Therefore, the project would have no impact.

NO IMPACT

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a.1. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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?*
- a.2. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*
- a.3. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*
- a.4. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*
- c. *Would the project 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. *Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

There are no active faults in the immediate project site vicinity; the San Andreas Fault is approximately 20 miles west of the project site (County of Kern 1978, DOC 2019b). While several minor earthquake faults that cross various parts of Kern County. The project vicinity is in an area less likely than other parts of the county to be affected significantly by rupture of a known fault (County of Kern 2004). The project site is relatively flat and not located near steep hillsides, so there is no potential for landslide. The site does not include geologic units that are subject to liquefaction.

The project site would not be occupied, nor would it include the establishment of any residences. The risk is very low for injury or death to occur from any of the hazards associated with surface rupture, ground shaking, liquefaction, landslides, or the effects of constructing a solar array on the site. No impact would occur. Furthermore, the Kern County General Plan requires permit applications to indicate the location of proposed structures so they may be evaluated for their suitability for installation at the proposed site, relative to surface fault rupture, ground shaking, and ground failure. The project would be constructed in compliance with the California Building Code and Kern County Code of Ordinances, as applicable.

Because the project site is not within a designated fault zone, near a mapped fault line, in a liquefaction area, in a landslide area, or underlain by expansive soils, construction and operation of the project would cause no impact related to fault zones, ground rupture, liquefaction, landslides, subsidence, or expansive soils.

NO IMPACT

- b. *Would the project result in substantial soil erosion or the loss of topsoil?*

Grading and site preparation associated with project construction can result in erosion and loss of topsoil. The project would be required to obtain coverage under the statewide National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit), administered by the State Water Resources Control Board (SWRCB). Section 10, *Hydrology and Water Quality*, describes how coverage under the NPDES Permit would require implementation of a Stormwater Pollution Prevention Plan (SWPPP) and various best management

practices (BMP) to reduce erosion and loss of topsoil during site construction. The Kern County Grading Code provides direction concerning erosion control (Section 17.28.140) and grading inspection (Section 17.28.170). Compliance with the NPDES permit and identified BMPs and with appropriate sections of the Kern County Grading Code would ensure impacts from erosion would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- e. *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

The project would install a solar array and would not require septic tanks or alternative wastewater disposal systems, as wastewater requiring storage or treatment would not be generated on the site. Therefore, no impacts would occur.

NO IMPACT

- f. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

The paleontological sensitivity of the geologic units that underlie the project site was evaluated using existing paleontological locality data and review of information in the scientific literature concerning known fossils within those geologic units. Fossil collections records from the Natural History Museum of Los Angeles County (NHMLAC) and University of California Museum of Paleontology (UCMP) online database were reviewed, which contain known fossil localities in Kern County (UCMP 2019).

Following the literature review, a paleontological sensitivity classification was assigned to the geologic units within the project site. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

The project site is located in the southwestern San Joaquin Valley within the Great Valley geomorphic province (California Geological Survey 2002). The geology of the project site is mapped by Dibblee and Minch (2006) at a scale of 1:24,000 and is entirely underlain by younger Quaternary alluvium (Qa). Near the surface, these Holocene deposits generally consist of undissected, unconsolidated alluvial gravel, sand and clay, primarily derived from erosion of volcanic, plutonic, and metamorphic rocks of the Coast Ranges (Matthews and Burnett 1965). At depth, these deposits may include older Quaternary (Pleistocene) alluvium (Qoa), which consists of unconsolidated, coarse to fine sand and silt with abundant pebbles and cobbles. Although not mapped at the surface in the project footprint, it is important to note the adjacent exposures of the Temblor Formation. The Miocene Temblor Formation is composed of interbedded terrestrial and marine sandstone and shale deposits, including light gray to tan arkose, gray to red pebbly sandstone, and gray red claystone. The Temblor Formation may underlie the Quaternary (Holocene to Pleistocene) alluvium in the project site at an unknown depth (Dibblee and Minch 2006; Graham et al. 1989).

Intact Holocene alluvial deposits in the project site are too young to preserve paleontological resources and are determined to have a low paleontological resource potential according to SVP standards (SVP 2010). However, at depth, the Holocene sediments may grade into older finer-grained deposits of Pleistocene age deposits or the Temblor Formation. Both of these units have a well-documented record of yielding abundant and diverse vertebrate fauna; therefore, these Pleistocene and Miocene deposits are assigned a high resource potential.

According to records maintained by the NHMLAC, LACM 7844-7845 were reported west of the project site on the south side of Bluestone Ridge, near the mouth of Antelope Valley, which yielded fossil specimens of iguanid lizard (Iguanidae), common snakes (Colubridae), bird (Aves), rabbits (*Lepus* and *Sylvilagus*), pocket gopher (*Thomomys*), pocket mouse (*Perognathus*), kangaroo rat (*Dipodomys*), and deer (*Odocoileus*) from Pleistocene age alluvial deposits. In addition, LACM 115, located east of the project site between Earlimart and Delano just east of Highway 99, produced a fossil specimen of horse (*Equus*) at a depth of 45 feet below ground surface (bgs) (McLeod 2019).

A review of the museum records maintained in the UCMP online collections database was also conducted. This database does not contain records for vertebrate fossil localities in the immediate vicinity of the project area. However, UCMP 1041 was reported from Pleistocene alluvial deposits in an unspecified location in Kern County, which yielded an elephant tibia and a camel fossil (UCMP 2019). In addition, the Temblor Formation has yielded abundant fossils resources, including more than 700 localities in central California. Of those localities, approximately 40 yielded hundreds of vertebrate specimens including sea cow, gomphothere, mastodon, horse, pinniped, fish, and sharks, among other taxa (UCMP 2019).

As currently proposed, project ground disturbance will reach a maximum depth of ten feet bgs during excavations associated with overhead pole and solar panel installations. However, disturbance to intact Pleistocene or Miocene deposits from these ground disturbing activities would be limited due to the small diameter of the auger and impacts to paleontological resources due to pile driving would be negligible. The Holocene deposits overlie the paleontologically-sensitive Pleistocene alluvial sediments at an unknown depth, but may be as extensive as 45 feet bgs (McLeod 2019). Given that the fossiliferous deposits may occur at greater depths than anticipated project disturbance, the potential for encountering fossil resources during project-related ground disturbance is low and impacts to paleontological resources are not anticipated.

Further paleontological resources work is not recommended at this time; however, Mitigation Measure GEO-1 is recommended in the case of unanticipated fossil discoveries during any project ground-disturbing activities. Mitigation Measure GEO-1 would apply to all phases of project construction and would ensure that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils.

Mitigation Measure

GEO-1 Unanticipated Discovery of Paleontological Resources

In the event an unanticipated fossil discovery is made during the course of project development, then in accordance with SVP (2010) guidelines, it is the responsibility of any worker who observes fossils within the project site to stop work in the immediate vicinity of the find and notify a qualified professional paleontologist who shall be retained to evaluate the discovery, determine its significance and if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction

work. Any significant paleontological resources found during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Project implementation would generate greenhouse gas (GHG) emissions through the burning of fossil fuels or other emissions of GHGs, thus potentially contributing to cumulative impacts related to climate change. In response to an increase in GHG concentrations over the past 150 years, California has implemented the “California Global Warming Solutions Act of 2006” also known as AB 32. AB 32 codified the Statewide goal of reducing emissions to 1990 levels by 2020 and the adoption of regulations to require reporting and verification of statewide GHG emissions. In 2016, Senate Bill 32 (SB 32) amended the California Global Warming Solutions Act of 2006 and required the State to further reduce GHGs to 40 percent below 1990 levels by 2030 and directing the California Air Resources Board (ARB) to ensure that GHGs are reduced to 40 percent below the 1990 level by 2030.

On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan does not provide specific 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) CO₂e by 2030 and two MT CO₂e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State.

The vast majority of 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 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]).

SJVAPCD adopted a Climate Change Action Plan (CCAP) in August 2008 to assist agencies with CEQA compliance, assist businesses in complying with GHG-related laws, and ensure GHG emission reduction projects do not have adverse public health or environmental justice impacts. At this time

the SJVAPCD has not set thresholds of significance for determining the impact of GHG emissions from an individual project on global climate change (SJVAPCD 2008).

On December 17, 2009, the SJVAPCD Governing Board adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the District Policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project-specific GHG emissions have on global climatic change.

The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation. The SJVAPCD's approach is intended to streamline the process of determining if project-specific GHG emissions would have a significant effect. Projects exempt from the requirements of CEQA and projects complying with an approved plan or mitigation program would be determined to have a less-than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document.

Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of GHG emissions and would be determined to have a less-than-significant cumulative impact for GHG emissions. Projects not complying with BPS would require quantification of GHG emissions and demonstration that GHG emissions have been reduced or mitigated by 29%, as targeted by CARB's AB 32 Scoping Plan. Furthermore, quantification of GHG emissions would be required for all projects for which the lead agency has determined that an EIR is required, regardless of whether the project incorporates BPSs. The SJVAPCD, however, has not yet identified BPSs for development projects. For stationary-source permitting projects, BPSs are "the most stringent of the identified alternatives for control of GHG emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions.

The Kern County General Plan Land Use, Conservation, and Open Space Element contains numerous policies and implementation measures related to air quality that would have indirect beneficial impacts to GHG emissions. Applicable policies and implementation measures are:

The Kern Council of Governments (Kern COG) 2018 Regional Transportation Plan/Sustainable Communities Strategy (SCS) provides the foundation for transportation decisions in the region, identifies strategies to resolve regional issues, and establish an action plan (KCOG 2018).

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction activities, energy use, and daily operational activities due to the proposed project would generate GHG emissions. As discussed in Section 3, *Air Quality*, CalEEMod version 2016.3.2 was used to calculate emissions resulting from project construction and operational haul trips.

Construction GHG Emissions

Project construction would generate GHG emissions from the operation of heavy machinery, motor vehicles, and worker trips to and from the site. Construction GHG emissions would be temporary, however, and would cease upon completion of construction. Although construction activity is addressed in this analysis, no agency in the region has set a quantifiable threshold for construction emissions. Additionally, the California Air Pollution Control Officers Association has stated that there are no approaches to adequately address impacts from temporary construction activity given the cumulative effects of GHG emissions. The *CEQA and Climate Change* white paper states that additional study is needed to make such an assessment or to develop separate thresholds for construction activity (California Air Pollution Control Officers Association 2008).

Construction activity would occur over a period of approximately six months starting in April 2020 with completion and expected in October 2020. Based on CalEEMod results, construction of the proposed project would generate an estimated 348 MT of CO₂e. Temporary and short-term project construction emissions would be minimal, as demonstrated in Table 3.

Operational GHG Emissions

Emissions resulting from solar electricity generation are negligible because no fuels are combusted. Facility operational-related emissions would be minimal. There would be no permanent on-site personnel. The only on-site activities would be associated with regular cleaning of the solar panels, emergency repair events, and occasional security checks. Project operational emissions include energy use and mobile sources (vehicle trips). During project operation, electricity would be generated on site and transmitted to local PG&E lines. Additional grid electrical energy demand would not be required for the proposed project. As discussed in Section 3, *Air Quality*, the proposed project would result in up to approximately 12 new annual vehicle trips for maintenance and inspections at the site, which would result in less than 0.1 MT CO₂e per year (see Appendix A for CalEEMod results). Operation emissions would be minimal, as demonstrated in Table 4, and project operations would not exceed SJVAPCD thresholds of significance. Additionally, the generation of solar energy would offset existing non-renewable energy use within the region, which currently generates GHG emissions. This would be a potentially beneficial GHG impact.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

The project would be consistent with the Kern County General Plan goals and policies to increase renewable energy production within the county.

The project would not significantly contribute to the emission of GHGs. Temporary project construction emissions would be minimal. In addition, Regulation VIII measures would be implemented as required by SJVAPCD, further decreasing potential emissions. The project would not significantly contribute to the emission of GHGs and, through the production of clean, emissions-free energy, would reduce GHGs emitted from the existing fossil fuel sources of energy production through reduced demand on these energy sources. The generation of solar energy would offset existing non-renewable energy use by BMWD, which currently generates GHG emissions. This would be a potentially beneficial GHG impact.

LESS THAN SIGNIFICANT IMPACT

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9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site that is included on a list of hazardous material 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- b. *Would the project 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?*

Operation of the proposed project would not involve the use, storage, transportation, or disposal of hazardous materials, as the solar facility would only require routine maintenance such as panel washing, which does not involve hazardous materials. Therefore, the proposed project would not create a significant hazard to the public or environment through the routine handling of hazardous materials.

Construction of the proposed project would temporarily increase the transport and use of hazardous materials in the area through the operation of construction vehicles and equipment. In addition, construction activities could cause an accidental upset or accident condition, such as a fuel leak or a fuel tank rupture. If such conditions cause a release of hazardous materials into the environment, potential impacts could occur. Limited quantities of miscellaneous hazardous substances, such as diesel fuel, oil, solvents, and other similar materials, would be brought onto the construction site, used, and stored during the construction period. These materials would be disposed of off-site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste. Project construction activities would comply with all relevant regulations, including the enforcement of hazardous materials transportation regulations and implementation of BMPs.

Project construction and operation would require the use of heavy equipment, which have the ability to generate dust. Soil on the project site may contain fungal spores that are known to cause Valley Fever. When the soil is disturbed by digging, vehicles, or by the wind, the fungal spores may become airborne, and may be inhaled by people on or near the site. In order to minimize the risk of Valley Fever, the generation of fugitive dust should be reduced to the greatest extent feasible. Such reduction can best be achieved by utilizing soil stabilizers before and during ground disturbing activities as described in Section 3, *Air Quality*. Prior to the initiation of construction a Fugitive Dust Control Plan outlining the methods to reduce dust is required by the SJVAPCD to demonstrate compliance with its Regulation VIII as described in Section 3, *Air Quality*.

It is not known at this time if the project site soils contain the fungus that may cause Valley Fever. Nonetheless, a potentially significant health risk impact associated with contraction of Valley Fever could result if Valley Fever fungal spores were in the soil, released as a result of construction and operation activities, and inhaled by workers, employees or nearby sensitive receptors.

Implementation of the following mitigation measure would reduce potential impacts pertaining to the release into the environment of hazardous materials and dust to less than significant.

Mitigation Measure

HAZ-1 Valley Fever Prevention

The constructor and operator of the project shall develop an Injury and Illness Prevention Program and project-specific health and safety plans. These plans should include but not be limited to the following:

- Train workers on the applicable evacuation activities to protect workers from potential hazards posed by hazardous wastes;
- Compliance with the SJVAPCD's Regulation VIII and SJVAPCD-approved Dust Control Plan;
- Train workers and supervisors on how to recognize symptoms of illness related to Valley Fever;
- Provide pre-construction training and instruction regarding requirements for on-site construction pursuant to the approved Dust Control Plan;
- Limit workers' exposure to outdoor dust in disease-endemic areas;
- When soil will be disturbed by heavy equipment or vehicles, wet the soil with water or other permitted soil stabilizer before disturbing it and continuously wet it while digging to keep dust levels down;
- Heavy equipment, trucks, and other vehicles generating heavy dust should have enclosed cabs equipped with air filters; and
- When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection to all employees.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

The nearest school district is the Lost Hills Union School District, based approximately 17 miles southeast of the site. Therefore, the use of small amounts of hazardous materials on site would not occur within 0.25 mile of a school and no impact would occur.

NO IMPACT

- d. *Would the project be located on a site that is included on a list of hazardous material 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?*

The following databases and listings compiled pursuant to Government Code Section 65962.5 for known hazardous materials contamination at the project site were checked:

- **United States Environmental Protection Agency (USEPA)**
 - Superfund Enterprise Management System (SEMS)
 - Envirofacts database search
- **State Water Resources Control Board (SWRCB)**
 - GeoTracker search for leaking underground storage tanks (LUST) and other cleanup sites
- **Department of Toxic Substances Control (DTSC)**
 - EnviroStor database for hazardous waste facilities or known contamination sites
 - Cortese list of Hazardous Waste and Substances Sites

The project site is not located on or directly adjacent to any known hazardous or contaminated sites. The Envirofacts, Geotracker, and EnviroStor database searches did not produce any results associated with the project site or within 0.25 mile of the project site (USEPA 2019a, SWRCB 2019, DTSC 2019a). A search on the SEMS database did not identify any hazardous waste facilities or other cleanup sites within 0.25 mile of the site (USEPA 2019b). The Cortese List included 27 sites within

Kern County, none of which are located within 0.25 mile of the project site (DTSC 2019b). Therefore, potential impacts to the project site would not occur due to the absence of listed sites within 0.25 mile of the project site.

NO IMPACT

- e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The project site is not located within 2 miles of a public airport or public use airport. The nearest airport is the Paramount Farming Airport, a private airport located approximately five miles southeast of the project site. Therefore, the project would not expose residents or workers in the project area to a safety hazard. No impact would occur.

NO IMPACT

- f. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

The project would not modify existing roadways in the vicinity of the project site. The construction of the access road to and perimeter roadways around the project site would improve emergency access to the site. Construction would not require lane closures in the vicinity of the site. Therefore, planned emergency access routes, as identified in the Kern County General Plan (Chapter 4: Safety Element) and Kern County Emergency Operations Plan would not be modified or otherwise impacted by the project. Additionally, during the design review phase, the Kern County Fire Department would review the site plan to ensure adequate emergency access is provided and no conflicts would occur with existing emergency response plans. No impacts would occur.

NO IMPACT

- g. *Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?*

The project site is not located in a very high fire hazard severity zone; however, it is located adjacent to and within a state responsibility area (SRA), with the interconnection route to Station A within the SRA (CAL FIRE 2007a, CAL FIRE 2007b). The Kern County Code of Ordinances Section 17.34.080 adopts the boundaries of CAL FIRE hazard severity zones as County-designated Hazardous Fire Areas. The project site is within the service area of Kern County Fire Department Station 26 located in Lost Hills, approximately 17.5 miles southeast of the site. The project site is relatively flat, but located adjacent to some hillsides to the north and west. However, these hillsides are not located in a very high fire hazard severity zone. A Vegetation Management Plan would be developed and implemented to ensure that vegetation is maintained adequately to prevent negative impacts to adjacent properties from wildfire spreading, and to ensure no interference with on-site solar production. Additionally, the project would be developed in compliance with local building code and fire code standards. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The federal Clean Water Act establishes the framework for regulating discharges to Waters of the United States in order to protect their beneficial uses. The Porter-Cologne Water Quality Act regulates water quality within California and establishes the authority of the SWRCB and the nine RWQCBs. The SWRCB requires construction projects to provide careful management and close monitoring of runoff during construction, including on-site erosion protection, sediment management, and prevention of non-storm discharges. The SWRCB and RWQCBs issue NPDES permits to regulate specific discharges. The NPDES Construction General Permit regulates stormwater discharges from construction sites that disturb more than one acre of land.

The project site overlies the San Joaquin Valley Groundwater Basin (SJVGB), which extends from Redding to Bakersfield throughout the Central Valley of California. The site is within the Kern County Subbasin of the SJVGB, which covers 1,945,000 acres (3,040 square miles) of the SJVGB. The project site is within the Packwood Creek Hydrologic Unit (HUC 180300121403). Surface water flows generally follow local creeks and irrigation canals. Groundwater is primarily recharged naturally through stream seepage along the eastern subbasin and the Kern River; however, applied irrigation water is the greater contributor to recharge (DWR 2006). The northern portion of the groundwater subbasin drains toward the Delta via the San Joaquin River and its tributaries, and the southern portion of the groundwater subbasin is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin (DWR 2006). Groundwater underlying the project site tends to flow to the east (Williamson et al. 1989).

- a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

Excavation, grading, and other activities associated with construction of the proposed project would result in soil disturbance that could cause water quality violations through potential erosion and subsequent sedimentation of receiving water bodies. Construction activities could also cause water quality violations in the event of an accidental fuel or hazardous materials leak or spill. If precautions are not taken to contain contaminants, construction activities could result in contaminated stormwater runoff that could enter nearby waterbodies. Construction activities resulting in ground disturbance of one acre or more are subject to the permitting requirements of the NPDES General Permit for Stormwater Discharges associated with Construction and Land Disturbance Activities (Construction General Permit Order No. 2009-0009-DWQ). The Construction General Permit requires the preparation and implementation of a SWPPP, which must be prepared before construction begins. The SWPPP includes specifications for BMPs implemented during project construction to minimize or prevent sediment or pollutants in stormwater runoff.

Project construction would comply with the requirements of the Construction General Permit. In addition, the contractor would be required to implement BMPs identified in the SWPPP to prevent construction pollution via stormwater and minimize erosion and sedimentation into waterways as a result of construction.

Compliance with the NPDES Construction General Permit would ensure the proposed project would not violate any water quality standards or WDRs, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

The project site overlies the SJVGB in the Kern County Subbasin. DWR has provided a draft ranking of this groundwater subbasin as a high priority subbasin that is critically overdrafted (DWR 2019). The Kern Groundwater Authority is developing a draft Groundwater Sustainability Plan (GSP) for the subbasin; however, no sections have been finalized. While the proposed project would construct new impervious surfaces that would prevent groundwater recharge in certain areas of the project site (refer to Figure 3), the proposed solar arrays would individually drain onto adjacent soils between the arrays, with the overall groundwater recharge of the site unchanged. Additionally, the proposed project does not involve substantial extraction or use of groundwater. Because the proposed project would not increase demand for groundwater and would have little to no effect on groundwater recharge, the proposed project would result in no impact on groundwater levels.

NO IMPACT

- c.(i) *Would the project 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 result in substantial erosion or siltation on- or off-site?*
- c.(ii) *Would the project 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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*
- c.(iii) *Would the project 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 that would 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?*
- c.(iv) *Would the project 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 impede or redirect flood flows?*

Drainage on and in the vicinity of the project site generally follows the gently sloping topography of the site from west to east. There are no existing or planned stormwater drainage systems within or adjacent to the project site. The project would involve minor grading of the project site, with import of fill material for the proposed perimeter and access roadways. Project construction would not substantially change the topography of the site. However, construction of the proposed project would result in new impervious surfaces, including concrete pads for inverters. Rainfall onto the proposed solar arrays would run off the panels and be incorporated into surface runoff.

As stated previously, project construction would be conducted in compliance with the State's Construction General Permit (Order No. 2009-0009-DWQ). Preparation of the SWPPP in accordance with the Construction General Permit would require erosion-control BMPs at the construction areas. Therefore, the project would not cause substantial erosion or siltation during construction.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the entirety of the project site (including the interconnection route and access road) is located within

Flood Zone X, outside the 100-year Flood Hazard Area (FEMA 2008). Therefore, the project would not alter the flood zone boundaries or cause excess flooding downstream of the site. There would be no impact.

NO IMPACT

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the entirety of the project site (including the interconnection route and access road) is located within Flood Zone X, outside the 100-year Flood Hazard Area (FEMA 2008). The project would not store materials on site that could pollute runoff from flood events. Therefore, inundation of the site would not occur during the 100-year flood, the project would not release pollutants into floodwaters, and this impact would be less than significant.

Due to distance from the ocean and lack of large water bodies within the project site, the project site is not subject to tsunamis or seiche. No impact would occur.

NO IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Comprehensive Groundwater Quality Management Plan, prepared by the Westside Water Quality Coalition (WWQC) in September 2016, addresses exceedances in water quality from nitrate, salts, and agricultural chemicals. The plan includes a management plan strategy that prioritizes high vulnerability areas, identifies significant sources of contamination within the plan boundary, and recommends outreach and education programs in high vulnerability areas. (WWQC 2016)

The Kern Groundwater Authority is developing a draft Groundwater Sustainability Plan (GSP) for the subbasin; however, no sections have been finalized. The project would not require substantial amounts of groundwater or otherwise affect the existing management strategies of the subbasin. As stated previously, the project would comply with NPDES permits regarding pollution of surface waters and surface runoff.

Overall, the proposed project would not conflict the implementation of the applicable water quality control plan and groundwater management plan, and no impact would occur.

NO IMPACT

11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. Would the project physically divide an established community?

The project would not result in the construction of barriers such as roadways or walls within an established community. The surrounding land is used for various agricultural operations, and the project would not impede the continuation of those operations. No impact would occur.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project would be built on land zoned as “A” (Exclusive Agriculture), which allows for “agriculture uses and other activities compatible with agriculture uses” (County of Kern 2019). Goals and policies in the General Plan that ensure compatibility of developments with agriculturally designated land are detailed in Table 9.

Table 9 General Plan Consistency

General Plan Goal or Policy	Proposed Project Consistency
<p>Land Use Element Resource Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.</p>	<p>Consistent. The proposed project would install solar facilities on the project site, an allowable use on agriculturally designated land.</p>
<p>Land Use Element Resource Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.</p>	<p>Consistent. The proposed project would install solar facilities on the project site, an allowable use on agriculturally designated land. The project would not interfere with adjacent agricultural or open space uses.</p>
<p>Energy Element General Goal: To assert Kern County’s position as California’s leading energy producer, to encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they affect energy development in Kern County.</p>	<p>Consistent. The proposed project would install solar facilities on the project site, to support energy needs of the BMWD. This advances Kern County’s position as an alternative source energy producer, in conjunction with BMWD.</p>
<p>Energy Element General Policy 7: The processing of all discretionary energy project proposals shall comply with California Environmental Quality Act (CEQA) Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.</p>	<p>Consistent. The proposed project would install solar facilities on the project site to support energy needs of the BMWD. This advances Kern County’s position as an alternative source energy producer, in conjunction with BMWD.</p>

Source: Kern County 2009

The proposed project would be consistent with these goals and policies and would support the County’s goal of promoting the development of renewable energy. There would be no conflicts with land use plans, policies, or regulations of Kern County. No impact would occur.

NO IMPACT

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project 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. *Would the project 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?*

While Kern County is one of the largest producers of mineral projects within the state, the project site is not located within a Mineral Resource Zone as defined by the Surface Mining Resource and Recovery Act (DOC 2015). There is a source of gypsum-anhydrite located approximately 0.9 mile northwest of Pump Station A (USGS 2019). There are no mineral resources within the project site, implementation of the project would not directly or indirectly affect this nearby mineral resource, and no impacts to mineral resources would occur as a result of the project.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Noise Background

Noise is defined as unwanted sound. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the ambient noise level to be judged as twice as loud. In general, a 3 dBA change in the ambient noise level is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while areas adjacent to arterial streets are typically in the 50-60+ dBA range. Normal conversational levels are usually in the 60-65 dBA range and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels from point sources, such as those from individual pieces of machinery, typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from the noise source. Noise

levels from roads typically attenuate at about 3 dBA per doubling of distance (Federal Transit Administration [FTA] 2018). Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source can reduce noise levels by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 10 dBA (FTA 2006). The manner in which homes in California are constructed generally provides a reduction of exterior-to-interior noise levels of approximately 20 to 25 dBA with closed windows (FTA 2006).

The duration of noise is important because sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (L_{eq}). The L_{eq} is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest RMS (root mean squared) sound pressure level within the measurement period, and L_{min} is the lowest RMS sound pressure level within the measurement period.

The time period in which noise occurs is also important since nighttime noise tends to disturb people more than daytime noise. Community noise is usually measured using the Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10 PM to 7 AM) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7 PM to 10 PM and a 10 dBA penalty for noise occurring from 10 PM to 7 AM. The L_{dn} and CNEL typically do not differ by more than 1 dBA. In practice, CNEL and L_{dn} are often used interchangeably.

Some land uses are more sensitive to ambient noise levels than other uses due to the amount of noise exposure and the types of activities involved. For example, residences, motels, hotels, schools, libraries, churches, nursing homes, auditoriums, museums, cultural facilities, parks, and outdoor recreation areas are more sensitive to noise than commercial and industrial land uses.

Vibration Background

Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas sound is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise (e.g., the rattling of windows from passing trucks). This phenomenon is caused by the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases.

Vibration is the periodic oscillation of a medium or object. Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground borne vibrations may be described by amplitude and frequency. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS), as in RMS vibration velocity. The PPV and RMS vibration velocity (VdB) are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal and is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings. (FTA 2018)

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. As it takes some time for the human body to respond to vibration signals, it is more prudent to use vibration velocity when measuring human response. The

typical background vibration-velocity level in residential areas is approximately 50 vibration decibels (VdB). Ground borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018). Most perceptible indoor vibration is caused by sources inside buildings such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads.

Vibration impacts would be significant if they exceed the following FTA thresholds (FTA 2018):

- 65 VdB where low ambient vibration is essential for interior operations, such as hospitals and recording studios
- 72 VdB for residences and buildings where people normally sleep, including hotels
- 75 VdB for institutional land uses with primary daytime use, such as churches and schools
- 95 VdB for physical damage to extremely fragile historic buildings
- 100 VdB for physical damage to buildings

In addition to the groundborne vibration thresholds outlined above, the FTA outlined human response to different levels of groundborne vibration and determined that vibration that is 85 VdB is acceptable only if there are an infrequent number of events per day (FTA 2018).

County of Kern Noise Levels

The County General Plan Noise Element provides noise contour estimates from traffic noise throughout the County. Because the project site is located more than 2 miles from the nearest highway, the site is outside all 55-dB noise contours. Agricultural uses are generally intermittent, with periods of no noise generation and periods of intensive mechanical equipment usage and noise generation. Based on this information, it is assumed that typical noise levels near the project site range from 55 to 65 dBA.

County of Kern Noise Standards

The General Plan Noise Element contains the following guidelines:

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Policy 5: Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:

- a) 65 dB Ldn or less in outdoor activity areas;
- b) 45 dB Ldn or less within interior living spaces or other noise sensitive interior spaces.

Additionally, the Kern County Code of Ordinances contains the following noise restrictions:

Section 8.36.020(H). To create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

For the purposes of this analysis, a significant impact would occur if project noise exceeds 65 dB Ldn at the nearest sensitive receptor.

Sensitive Receptors

The project site is surrounded by agricultural and undeveloped land, primarily row crops and associated irrigation infrastructure. The nearest agricultural residence is located approximately 3.3 miles east of the project site.

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Project operation would not generate noise; however, project construction would involve temporary noise generated by construction equipment. Construction would last approximately six months. Construction equipment would include generators, excavators, graders, plate compactors, water trucks, bore/drill rigs, pile drivers, backhoes, forklifts, skid steer loaders, and miscellaneous equipment. During the construction phases of the project, noise from construction activities would contribute to the noise environment in the immediate project vicinity. Activities involved in construction would generate noise levels indicated in Table 10, ranging from 80 to 101 dBA at a distance of 50 feet, and noise levels less than 53 dBA at the nearest sensitive receptor, which is 3.3 miles (17,400 feet) from the site. Therefore, noise levels at the nearest sensitive receptor would not exceed the County noise threshold of 65 dBA.

Table 10 Estimated Noise Levels Generated during Construction Phases

Construction Equipment	Leq at 50 feet (dBA, CNEL) ^{1,2}	Leq at 17,400 feet (dBA, CNEL) ³
Backhoe	80	<32
Compactor	82	<34
Generator	82	<34
Grader	85	<37
Loader	80	<32
Piledriver	101	<53
Truck	84	<36

1 - A-weighted decibel (dBA) is defined as a decibel (dB) adjusted to be consistent with human response.

2 - Community Noise Equivalent Level (CNEL) is the 24-hour average noise level of all hourly Leq measurements with a 10 dB penalty added to the night-time levels between 10 PM and 7 AM and a 5 dB penalty added to the evening levels between 7 PM and 10 PM to reflect people's extra sensitivity to noise during the night and the evening.

3 - These calculated values were determined based on an attenuation rate of 6 dBA per doubling of distance, to a conservative distance of 12,800 feet. At 17,400 feet, construction noise levels would be lower than those provided in this column.

Source: FTA 2018

The Kern County General Plan Noise Element Policy 5 sets the standard noise threshold of 65 dBA at the exterior of residences; however, it does not identify a short-term, construction-noise-level threshold. The noise levels of construction equipment in Table 10 above are at a distance of 50 and 17,400 feet from the listed equipment. The nearest residence is approximately 3.3 miles to the east. As construction activities would be restricted to daytime hours, at a far distance from sensitive receptors, and short-term in nature, construction noise impacts would be less than significant.

Construction of the proposed project is anticipated to last six months. All related construction activities and project operations would comply with the standards set forth by the County General Plan Noise Element and the County Code of Ordinances and would be conducted during daylight hours per Section 8.36.020(H) of the County Code of Ordinances, with minimal work on weekends and holidays. Post-construction activities would include site system testing, commissioning, and site clean-up. Adherence to General Plan policies and County ordinances would ensure that any potential impacts related to noise levels would remain less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous. The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day. Table 11 below describes the typical construction equipment vibration levels that are expected to occur during project construction.

Table 11 Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB			
	25 feet	100 feet	500 feet	1,000 feet
Compactor	94	76	55	46
Drill Rig	87	69	48	39
Piledriver	112 (maximum) 104 (typical)	94 (maximum) 86 (typical)	73 (maximum) 65 (typical)	64 (maximum) 56 (typical)
Truck	86	67	46	37

Source: FTA 2018

The nearest receptor is located approximately 3.3 miles (17,400 feet) from the project site. Vibration at this receptor from construction activities would be temporary and not exceed the FTA threshold of 65 VdB. Additionally, operation of the project would not result in substantial sources of vibration on the project site. Trips to the project site for maintenance would only occur two times per year, and would not cause permanent vibration impacts on residences adjacent to the site access roadways. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The project site is not located within two miles of a public airport or public use airport. The nearest airport is Paramount Farming Airport, a private airport located approximately five miles southeast of the project site. Therefore, the project would not expose residents or workers to excessive aircraft noise on the project site. No impacts would occur.

NO IMPACT

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project 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)?*

The project would not induce population growth on the project site, as no residential structures are proposed. Project maintenance activities would be conducted by Tesla employees at the solar array and BMWD employees at Station A. No full-time year-round positions would be created by the project as maintenance activities for the solar panels would only be required twice per year. The solar power generated would meet approximately 80 percent of the electrical needs at BMWD’s Pump Station A. Therefore, the project would not directly or indirectly induce population growth, and no impact would occur.

NO IMPACT

- b. *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

The project would not result in the demolition or removal of housing from the project site or adjacent land. Therefore, construction and operation of the project would not displace people or housing, and no impact would occur.

NO IMPACT

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15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 other performance objectives for any of the public services:				
1 Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5 Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 other performance objectives for any of the public services:*

- 1 *Fire protection?*
- 2 *Police protection?*
- 3 *Schools?*
- 4 *Parks?*
- 5 *Other public facilities?*

The project site is served by the Kern County Fire Department Station 26 located in Lost Hills, approximately 17.5 miles southeast of the site. The project site is served by the Kern County Sheriff Department located in Wasco, approximately 37 miles southeast of the site. The nearest school district is the Lost Hills Union School District, based approximately 17 miles southeast of the site.

The project does not include the construction of structures nor would it induce population growth on the project site or in the surrounding area. As such, the project would not increase the demand

Berrenda Mesa Water District Solar Project

for public services, including fire protection services, police protection services, schools, parks, and other facilities to the site. Additionally, the project would not alter local roadways or impede emergency access driveways to the project site or surrounding parcels. During the design review phase, the Kern County Fire Department would review the site plan to ensure adequate emergency access is provided and no conflicts would occur with existing emergency response plans. No impacts would occur.

NO IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*
- b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

As discussed in Section 14, *Population and Housing*, the project would not construct new housing or otherwise induce population growth and does not include recreational facilities. Therefore, the project would not increase the demand for recreational facilities or result in adverse effects related to the construction of recreational facilities. No impacts would occur.

NO IMPACT

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17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

The project would not construct public roadway improvements within the County, nor would it require additional improvements due to substantially increased vehicle trips in the vicinity of the project site. Operation of the project would require routine maintenance, resulting in up to approximately 12 yearly vehicle trips, and otherwise would not generate vehicle trips to the site. During construction, approximately 28 daily worker trips would be generated. Due to the infrequency of visits to the proposed solar field, implementation of the project would not conflict with General Plan circulation goals or policies.

The Kern Region Active Transportation Plan and Kern County Bicycle Master Plan do not identify roadways in the vicinity of the project site as containing existing designated bikeways, nor do these plans indicate future bikeways would be constructed adjacent to the project site (County of Kern 2012a, 2018). The project would not result in vehicle conflicts with existing bike routes, nor would it impede implementation of this plan.

The project would not require increased bicycle, pedestrian, or transit access to the project site, nor would it increase the demand for these facilities in the County. No impact would occur.

NO IMPACT

b. *Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?*

Kern County currently has VMT of approximately 10,101 miles per capita per year (Caltrans 2017; California Department of Finance 2019). The project’s increase of up to approximately 12 trips per

year would not substantially increase the VMT per capita in Kern County. As neither BMWWD nor the County has yet determined additional VMT thresholds for the purpose of CEQA analyses, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*

The project would not modify existing roadways or create new roadways within or in the vicinity of the project site. Therefore, the project would not introduce new hazards from roadway design features. Additionally, the project would result in minimal new vehicle trips to the project site, and would not introduce incompatible uses with the surrounding agricultural land as no residential or commercial facilities are proposed that would increase passenger vehicle trips in the area. There would be no impact.

NO IMPACT

- d. *Would the project result in inadequate emergency access?*

The project would not modify existing roadways or create new roadways within or in the vicinity of the project site. Construction would not require lane closures in the vicinity of the site. Therefore, planned emergency access routes, as identified in the Kern County General Plan (Chapter 4: Safety Element) and Kern County Emergency Operations Plan would not be modified or otherwise impacted by the project. Emergency routes would not need to be altered, and adequate access would be provided to the project site via existing access roadways and entrances. No impacts would occur.

NO IMPACT

18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called tribal cultural resources (TCRs). AB 52 establishes “a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts which would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2. 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 PRC 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those having requested notice of projects proposed within the jurisdiction of the lead agency.

This evaluation assesses potential impacts to tribal cultural resources resulting from the proposed project.

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?*
- b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is 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?*

As part of the process for identifying the potential for cultural resources, Rincon Consultants contacted the Native American Heritage Commission (NAHC) to request a list Native Americans contacts who may have knowledge of resources within the project site. The NAHC responded on July 8, 2019 with the names and contact information of two tribes: Tule River Indian Tribe and Wuksache Indian Tribe/Eshom Valley Band. Two Native American contacts have requested notification of projects under AB 52 from BMWWD, per a list request from the Native American Heritage Commission. BMWWD has distributed AB 52 notification letters for the proposed project to the Tule River Indian Tribe and Wuksache Indian Tribe/Eshom Valley Band.

No responses to the AB 52 letters were received during the 30-day window. Under AB 52, Native American tribes have 30 days to respond and request further project information and formal consultation. The 30-day window for the current project closed on August 15, 2019. Should any other tribes respond to the consultation request during the public comment period for this Initial Study, they will be provided to the decision makers at the hearing for approval of the project.

Further, no cultural resources of Native American origin were identified during the record search that would be impacted by the project (see Section 5, *Cultural Resources*). Additionally, no known sacred sites or tribal cultural resources were identified within the project site during the archaeological field survey. Furthermore, Rincon did not receive any comments from Native American contacts regarding the project during Rincon’s outreach effort to the tribes, separate from the AB 52 process.

Based on the above and for the purposes of the current draft, it is assumed that no known tribal cultural resources are present within the project site. However, if tribal cultural resources were encountered during project ground disturbance, impacts would be potentially significant. To reduce those impacts to a less than significant level, Mitigation Measure CUL-1, provided in Section 5, *Cultural Resources*, above, requires construction to cease and notification of qualified professionals to evaluate the find. If tribes receiving AB 52 notification letters identify tribal cultural resources within the project site, additional mitigation measures may be included in later drafts of this document.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

- a. *Would the project 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. *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*
- c. *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

Water, Wastewater, and Stormwater

Unincorporated Kern County, including the project site, is not served by municipal water, wastewater, and stormwater systems, and primarily utilizes individual wells for water supply requirements, septic systems for wastewater disposal and treatment, and retention basins or other measures for stormwater control. The BMWD provides irrigation water to agricultural lands within its boundaries, including lands near the project site. This irrigation water is delivered to BMWD via the California Aqueduct and is delivered to agricultural customers via concrete lined canals and underground pipelines (BMWD 2019).

The facility would not include permanent restroom facilities or require a sewer hookup. The project would not require changes to facilities or operations at existing wastewater facilities. Project operation would not generate any wastewater, nor would it require significant amounts of water. The project would require approximately 37,000 gallons of water during construction and 30,000 gallons of water per panel washing maintenance during operation. All water used on site would be trucked in from BMWD facilities. The application of water to solar panels to clean off dust would be very diffuse across the 60-acre project site. The small amount of water running off panels during panel washing maintenance activities would not generate enough flow to require drainage or wastewater treatment facilities or connection to local services. The runoff that does not evaporate would be allowed to percolate into the ground surface. No new facilities would be needed.

Electricity, Natural Gas, and Telecommunications

The project site is served by PG&E for electricity, within the SoCalGas service boundary for natural gas, and could be served by a variety of telecommunications providers (including Frontier, Spectrum, and Viasat). The project would connect the proposed solar array to BMWD's Pump Station A via an interconnection route as described above. The project would not increase the need for electricity, natural gas, or telecommunications services to the project site, and would generate electricity that would be utilized by BMWD at Pump Station A. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project 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. *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Kern County is served by several landfills, the closest of which is the Shafter-Wasco Landfill. The Shafter-Wasco Landfill currently accepts an average of approximately 459 tons per day (tpd) of waste, with a maximum daily tonnage of 1,500 tpd and available capacity of 1,041 tpd. The landfill has a remaining capacity of 13.9 million cubic yards (mcy) and an estimated closure date of 2059 (CalRecycle 2018). Construction of the project would generate solid waste, including construction debris; however, this is not expected to generate a substantial amount of waste that would exceed the landfill capacity. Operation of the project would generate minimal amounts of solid waste from maintenance activities. PV solar system wastes typically include broken and rusted metal, defective or malfunctioning modules, electrical materials, and empty containers and other miscellaneous solid materials. Most of these materials would be collected and delivered back to the manufacturer for recycling. The existing landfills have adequate capacity, and the recycling of decommissioned

materials would further reduce the waste stream. Therefore, project impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

The project site is not located in a very high fire hazard severity zone; however, it is located adjacent to and within a state responsibility area (SRA), with the interconnection route to Station A within the SRA (CAL FIRE 2007a, CAL FIRE 2007b). The Kern Multi Jurisdiction Hazard Mitigation Plan Comprehensive Update (2012b), which the BMWWD adopted in April 2014, provides background on wildfire hazards within the County, as well as opportunities to minimize wildfire risk. No roads would be permanently closed because of construction or operation of the proposed project. The project would improve emergency access to the project site by providing gravel access, perimeter, and internal roadways with sufficient ingress/egress for vehicles that would use the road.

Further, the Safety Element of the Kern County General Plan provides the following policies and implementation measures to prevent wildfires within the county, which the proposed project would abide by as necessary:

- Policy 4.6.1** Require discretionary projects to assess impacts on emergency services and facilities.
- Policy 4.6.3** The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.
- Policy 4.6.4** Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.
- Policy 4.6.6** All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measure 4.6.A Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Therefore, implementation of the proposed project would not interfere with existing emergency evacuation plans or emergency response plans in the area, and no impact would occur.

NO IMPACT

- b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?*

The project site consists of an undeveloped site, surrounded by agricultural uses and open space hillsides. The hillsides to the north and west of the site, including the interconnection route to Station A, are identified as moderate fire hazard areas in the SRA (CAL FIRE 2007a). The project does not include housing or occupied structures. The project includes a Vegetation Management Plan, which would be developed and implemented to ensure that vegetation is maintained adequately to prevent negative impacts to adjacent properties from wildfire spreading, and to ensure no interference with on-site solar production. Furthermore, construction of the solar array, interconnection facilities, and gravel roads would not exacerbate wildfire risk, as further explained in checklist criterion (c) below. Therefore, no impact would occur.

NO IMPACT

- c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?*

The project would involve the construction of solar arrays, interconnection utilities, and gravel roadways. Heavy duty equipment used during project construction equipment may produce sparks that could ignite vegetation. However, California Public Resources Code (PRC) Section 4442 mandates the use of spark arrestors, which prevent the emission of flammable debris from exhaust, on earth-moving and portable construction equipment with internal combustion engines that is

operating on any forest-covered, brush-covered, or grass-covered land. Furthermore, PRC Sections 4427 and 4431 specify standards for conducting construction activities on days when a burning permit is required, and PRC Section 4428 requires construction contractors to maintain fire suppression equipment during the highest fire danger period (April 1 to December 1) when operating on or near any forest-covered, brush-covered, or grass-covered land. Therefore, with compliance with applicable PRC provisions, project construction would not exacerbate wildfire risk. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?*

The hillsides located to the north and west of the solar array site, which encompass the interconnection route, present a fire risk, as wildfires more easily spread along slopes. The project does not include housing or occupied structures, and does include a Vegetation Management Plan, which would be developed and implemented to ensure that vegetation is maintained adequately to prevent negative impacts to adjacent properties from wildfire spreading, and to ensure no interference with on-site solar production. Construction on the project site would not substantially alter site drainage, which is currently uncontrolled and follows site topography. Therefore, the project would not expose people or structures to downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. No impact would occur.

NO IMPACT

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21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Does the project:

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| <p>a. 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?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>b. Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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?*

The project site is a previously disturbed area and contains ruderal, weedy species and annual grasses. As described in Section 4, *Biological Resources*, potential impacts to special-status wildlife species and nesting birds may occur during construction of the proposed project. Mitigation Measures BIO-1 through BIO-5 are included to adequately mitigate potential impacts to these species and reduce impacts to a less than significant level. Furthermore, impacts to potential special-status plants, fish species, wetlands, or migratory corridors were determined to be less than significant with no mitigation required. Therefore, the proposed project would not 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. The project would not eliminate important examples of the major periods of California history or prehistory as described in Section 5, *Cultural Resources*. Mitigation Measure CUL-1 would require evaluation and protection of unanticipated cultural resources, as necessary. Mitigation Measure GEO-1 would require evaluation and recovery of unanticipated significant paleontological resources, as necessary.

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- b. *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

As described in the discussion of environmental checklist Sections 1 through 20, with respect to all environmental issues, the proposed project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. Construction activities would be limited to the project site and would not cause impacts on adjacent or nearby properties. Additionally, potential effects from construction would be temporary and short term. At this time, there are no other planned or pending projects known to be occurring within one mile of the project site during project construction. If other construction projects did occur at the same time in the immediate area, any cumulative effects would also be short-term and temporary.

Aesthetic impacts would be less than significant; there are no scenic vistas, scenic highways, or public vantage points within the vicinity of the site, and lighting and glare would be limited to the immediate area, which contains no residences or other sensitive receptors. The project would not exceed SJVAPCD air quality emission thresholds, conflict with air quality management plans, contribute to CO hotspots as a result of increased traffic, or generate odors. GHG impacts would primarily occur during construction and would be temporary in nature. Cumulative air quality and greenhouse gas emissions are considered less than significant. The project site includes a fallow agricultural field and previously disturbed roadway and utility easement areas. Sensitive biological species have the potential to be present on the site; however, proposed Mitigation Measures BIO-1 through BIO-5 would reduce cumulative impacts to less than significant. There are no known historical, archaeological, paleontological, or tribal cultural resources, or human remains in the project site, and impacts are anticipated to be less than significant with Mitigation Measures CUL-1 and GEO-1 for discovery of unanticipated resources. Cumulative cultural resource impacts would also be less than significant with implementation of Mitigation Measures CUL-1 and GEO-1. The project would use minimal amounts of hazardous materials during construction and operation of the project; however, construction has the potential to release Valley Fever fungal spores from site soils. With implementation of Mitigation Measure HAZ-1 this impact would be less than significant and not cumulatively considerable. With the implementation of proposed mitigation measures, the incremental effects of the project would not be cumulatively considerable when viewed in connection with the effects of past, present, and future projects. Additionally, the project would not induce growth in the region, as it does not include the development of residences on the site nor would it expand utilities and service systems to allow for additional growth in the area. Therefore,

the proposed project would not result in a considerable contribution to any cumulative impact, significant or otherwise.

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- c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

As detailed in the preceding sections, the proposed project would not result, either directly or indirectly, in substantial adverse effects. Where potential environmental impacts would occur, including the exposure of people to Valley fever fungal spores, mitigation measures would be implemented to reduce or avoid an impact. With adherence to the mitigation program the proposed project would not result in substantial adverse effects on either the environment or human beings.

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List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the Berrenda Mesa Water District. Persons involved in data gathering analysis, project management, and quality control are listed below.

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Appendix A

CalEEMod Output Files

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

BMWD 8-MW Solar Project
Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	58.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	3			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

Project Characteristics - SPV Project does not use energy

Land Use - Project is one 57-acre solar facility + the 0.32 mile interconnect (approx 1.6 acres)

Construction Phase - Timeline per BMWD

Off-road Equipment - BMWD

Off-road Equipment - Per BMWD

Off-road Equipment - Per BMWD

Off-road Equipment - BMWD

Off-road Equipment - Per BMWD

Trips and VMT - Worker trips for construction assumed same as for site prep, 62 one-way trips for large trucks for panels, racks, and associated equipment, 28 construction workers

On-road Fugitive Dust - The path to the site is an unimproved dirt road

Grading - per BMWD for access road

Vehicle Trips - 36 trips per year for maintenance

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Road Dust - Path to the site is unimproved dirt road with dirt road surrounding the site

Consumer Products - no paveing, and no landscaping

Area Coating - no painting of panels, no paved parking

Energy Use - no energy use during operation

Water And Wastewater - water use per BMWD

Construction Off-road Equipment Mitigation - Water exposed area per BMWD, Tier III equipment due to requirements of CARB's In-Use Offroad Equipmnet regulations.

Water Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	1,110.00	61.00
tblConstructionPhase	NumDays	1,110.00	16.00
tblConstructionPhase	NumDays	40.00	26.00
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	AcresOfGrading	13.00	57.00

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tblGrading	MaterialImported	0.00	2,250.00
tblLandUse	LotAcreage	0.00	58.60
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	100	99
tblTripsAndVMT	HaulingTripNumber	31.00	113.00
tblTripsAndVMT	VendorTripNumber	0.00	128.00
tblTripsAndVMT	WorkerTripNumber	13.00	28.00
tblTripsAndVMT	WorkerTripNumber	0.00	28.00
tblTripsAndVMT	WorkerTripNumber	15.00	28.00
tblTripsAndVMT	WorkerTripNumber	0.00	28.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

tblWater	OutdoorWaterUseRate	0.00	30,000.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1892	2.2540	1.2708	3.9100e-003	0.8085	0.0810	0.8895	0.0894	0.0756	0.1650	0.0000	355.0420	355.0420	0.0743	0.0000	356.8990
Maximum	0.1892	2.2540	1.2708	3.9100e-003	0.8085	0.0810	0.8895	0.0894	0.0756	0.1650	0.0000	355.0420	355.0420	0.0743	0.0000	356.8990

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0904	1.7471	1.6823	3.9100e-003	0.7918	0.0610	0.8528	0.0876	0.0608	0.1484	0.0000	355.0417	355.0417	0.0743	0.0000	356.8987
Maximum	0.0904	1.7471	1.6823	3.9100e-003	0.7918	0.0610	0.8528	0.0876	0.0608	0.1484	0.0000	355.0417	355.0417	0.0743	0.0000	356.8987

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	52.24	22.49	-32.38	0.00	2.07	24.69	4.13	2.01	19.58	10.07	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-10-2019	9-9-2019	0.2579	0.1786
		Highest	0.2579	0.1786

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0306	0.0306	0.0000	0.0000	0.0307
Total	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0306	0.0306	0.0000	0.0000	0.0307

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0269	0.0269	0.0000	0.0000	0.0270
Total	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0269	0.0269	0.0000	0.0000	0.0270

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.01	12.01	0.00	0.00	11.99

3.0 Construction Detail

Construction Phase

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/10/2019	7/15/2019	5	26	
2	Array building	Building Construction	8/27/2019	11/19/2019	5	61	
3	Gen Tie	Trenching	7/16/2019	8/26/2019	5	30	
4	Commissioning	Building Construction	11/20/2019	12/11/2019	5	16	

Acres of Grading (Site Preparation Phase): 57

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Generator Sets	1	8.00	84	0.74
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Plate Compactors	1	8.00	8	0.43
Array building	Bore/Drill Rigs	1	8.00	221	0.50
Array building	Cranes	4	7.00	231	0.29
Array building	Excavators	1	8.00	158	0.38
Array building	Generator Sets	1	8.00	84	0.74
Array building	Off-Highway Trucks	1	8.00	402	0.38
Array building	Plate Compactors	1	8.00	8	0.43
Array building	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Gen Tie	Bore/Drill Rigs	1	8.00	221	0.50
Gen Tie	Excavators	1	6.00	158	0.38
Gen Tie	Forklifts	1	6.00	89	0.20
Gen Tie	Generator Sets	1	2.00	84	0.74
Gen Tie	Off-Highway Trucks	1	2.00	402	0.38
Gen Tie	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Commissioning	Forklifts	1	6.00	89	0.20
Commissioning	Generator Sets	1	6.00	84	0.74
Commissioning	Skid Steer Loaders	1	6.00	65	0.37

Trips and VMT

BMWD 8-MW Solar Project - Kern-San Joaquin County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	28.00	0.00	113.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Array building	11	28.00	128.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gen Tie	6	28.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Commissioning	3	28.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0304	0.0000	0.0304	3.2900e-003	0.0000	3.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0206	0.2195	0.1434	3.3000e-004		9.1900e-003	9.1900e-003		8.7000e-003	8.7000e-003	0.0000	29.2492	29.2492	7.3100e-003	0.0000	29.4319
Total	0.0206	0.2195	0.1434	3.3000e-004	0.0304	9.1900e-003	0.0396	3.2900e-003	8.7000e-003	0.0120	0.0000	29.2492	29.2492	7.3100e-003	0.0000	29.4319

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3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.8000e-004	0.0167	2.3600e-003	5.0000e-005	0.0161	6.0000e-005	0.0162	1.7800e-003	6.0000e-005	1.8400e-003	0.0000	4.3811	4.3811	2.6000e-004	0.0000	4.3876
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1500e-003	1.6000e-003	0.0153	5.0000e-005	0.0866	3.0000e-005	0.0867	9.3900e-003	3.0000e-005	9.4200e-003	0.0000	4.2790	4.2790	1.2000e-004	0.0000	4.2820
Total	2.6300e-003	0.0183	0.0177	1.0000e-004	0.1028	9.0000e-005	0.1029	0.0112	9.0000e-005	0.0113	0.0000	8.6601	8.6601	3.8000e-004	0.0000	8.6695

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0137	0.0000	0.0137	1.4800e-003	0.0000	1.4800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5700e-003	0.1524	0.1949	3.3000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	29.2492	29.2492	7.3100e-003	0.0000	29.4319
Total	7.5700e-003	0.1524	0.1949	3.3000e-004	0.0137	7.3700e-003	0.0211	1.4800e-003	7.3700e-003	8.8500e-003	0.0000	29.2492	29.2492	7.3100e-003	0.0000	29.4319

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3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.8000e-004	0.0167	2.3600e-003	5.0000e-005	0.0161	6.0000e-005	0.0162	1.7800e-003	6.0000e-005	1.8400e-003	0.0000	4.3811	4.3811	2.6000e-004	0.0000	4.3876
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1500e-003	1.6000e-003	0.0153	5.0000e-005	0.0866	3.0000e-005	0.0867	9.3900e-003	3.0000e-005	9.4200e-003	0.0000	4.2790	4.2790	1.2000e-004	0.0000	4.2820
Total	2.6300e-003	0.0183	0.0177	1.0000e-004	0.1028	9.0000e-005	0.1029	0.0112	9.0000e-005	0.0113	0.0000	8.6601	8.6601	3.8000e-004	0.0000	8.6695

3.3 Array building - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1191	1.3026	0.7721	1.8400e-003		0.0578	0.0578		0.0538	0.0538	0.0000	164.3842	164.3842	0.0474	0.0000	165.5703
Total	0.1191	1.3026	0.7721	1.8400e-003		0.0578	0.0578		0.0538	0.0538	0.0000	164.3842	164.3842	0.0474	0.0000	165.5703

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3.3 Array building - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0180	0.5000	0.1006	1.0600e-003	0.3694	3.5800e-003	0.3729	0.0413	3.4200e-003	0.0447	0.0000	100.7243	100.7243	9.1700e-003	0.0000	100.9535
Worker	5.0600e-003	3.7500e-003	0.0360	1.1000e-004	0.2032	7.0000e-005	0.2033	0.0220	7.0000e-005	0.0221	0.0000	10.0392	10.0392	2.8000e-004	0.0000	10.0462
Total	0.0231	0.5038	0.1366	1.1700e-003	0.5726	3.6500e-003	0.5763	0.0633	3.4900e-003	0.0668	0.0000	110.7636	110.7636	9.4500e-003	0.0000	110.9997

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0441	0.8803	1.0644	1.8400e-003		0.0401	0.0401		0.0401	0.0401	0.0000	164.3840	164.3840	0.0474	0.0000	165.5701
Total	0.0441	0.8803	1.0644	1.8400e-003		0.0401	0.0401		0.0401	0.0401	0.0000	164.3840	164.3840	0.0474	0.0000	165.5701

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3.3 Array building - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0180	0.5000	0.1006	1.0600e-003	0.3694	3.5800e-003	0.3729	0.0413	3.4200e-003	0.0447	0.0000	100.7243	100.7243	9.1700e-003	0.0000	100.9535
Worker	5.0600e-003	3.7500e-003	0.0360	1.1000e-004	0.2032	7.0000e-005	0.2033	0.0220	7.0000e-005	0.0221	0.0000	10.0392	10.0392	2.8000e-004	0.0000	10.0462
Total	0.0231	0.5038	0.1366	1.1700e-003	0.5726	3.6500e-003	0.5763	0.0633	3.4900e-003	0.0668	0.0000	110.7636	110.7636	9.4500e-003	0.0000	110.9997

3.4 Gen Tie - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0159	0.1690	0.1360	3.3000e-004		7.8500e-003	7.8500e-003		7.2900e-003	7.2900e-003	0.0000	29.0858	29.0858	8.6700e-003	0.0000	29.3025
Total	0.0159	0.1690	0.1360	3.3000e-004		7.8500e-003	7.8500e-003		7.2900e-003	7.2900e-003	0.0000	29.0858	29.0858	8.6700e-003	0.0000	29.3025

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3.4 Gen Tie - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	1.8500e-003	0.0177	5.0000e-005	0.1000	4.0000e-005	0.1000	0.0108	3.0000e-005	0.0109	0.0000	4.9373	4.9373	1.4000e-004	0.0000	4.9407
Total	2.4900e-003	1.8500e-003	0.0177	5.0000e-005	0.1000	4.0000e-005	0.1000	0.0108	3.0000e-005	0.0109	0.0000	4.9373	4.9373	1.4000e-004	0.0000	4.9407

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9200e-003	0.1594	0.2010	3.3000e-004		7.6300e-003	7.6300e-003		7.6300e-003	7.6300e-003	0.0000	29.0858	29.0858	8.6700e-003	0.0000	29.3024
Total	7.9200e-003	0.1594	0.2010	3.3000e-004		7.6300e-003	7.6300e-003		7.6300e-003	7.6300e-003	0.0000	29.0858	29.0858	8.6700e-003	0.0000	29.3024

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3.4 Gen Tie - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	1.8500e-003	0.0177	5.0000e-005	0.1000	4.0000e-005	0.1000	0.0108	3.0000e-005	0.0109	0.0000	4.9373	4.9373	1.4000e-004	0.0000	4.9407
Total	2.4900e-003	1.8500e-003	0.0177	5.0000e-005	0.1000	4.0000e-005	0.1000	0.0108	3.0000e-005	0.0109	0.0000	4.9373	4.9373	1.4000e-004	0.0000	4.9407

3.5 Commissioning - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1300e-003	0.0380	0.0378	6.0000e-005		2.3300e-003	2.3300e-003		2.2500e-003	2.2500e-003	0.0000	5.3286	5.3286	8.3000e-004	0.0000	5.3493
Total	4.1300e-003	0.0380	0.0378	6.0000e-005		2.3300e-003	2.3300e-003		2.2500e-003	2.2500e-003	0.0000	5.3286	5.3286	8.3000e-004	0.0000	5.3493

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3.5 Commissioning - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3300e-003	9.8000e-004	9.4300e-003	3.0000e-005	2.8100e-003	2.0000e-005	2.8300e-003	7.5000e-004	2.0000e-005	7.6000e-004	0.0000	2.6332	2.6332	7.0000e-005	0.0000	2.6351
Total	1.3300e-003	9.8000e-004	9.4300e-003	3.0000e-005	2.8100e-003	2.0000e-005	2.8300e-003	7.5000e-004	2.0000e-005	7.6000e-004	0.0000	2.6332	2.6332	7.0000e-005	0.0000	2.6351

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3200e-003	0.0302	0.0407	6.0000e-005		2.1100e-003	2.1100e-003		2.1100e-003	2.1100e-003	0.0000	5.3286	5.3286	8.3000e-004	0.0000	5.3493
Total	1.3200e-003	0.0302	0.0407	6.0000e-005		2.1100e-003	2.1100e-003		2.1100e-003	2.1100e-003	0.0000	5.3286	5.3286	8.3000e-004	0.0000	5.3493

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3.5 Commissioning - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3300e-003	9.8000e-004	9.4300e-003	3.0000e-005	2.8100e-003	2.0000e-005	2.8300e-003	7.5000e-004	2.0000e-005	7.6000e-004	0.0000	2.6332	2.6332	7.0000e-005	0.0000	2.6351
Total	1.3300e-003	9.8000e-004	9.4300e-003	3.0000e-005	2.8100e-003	2.0000e-005	2.8300e-003	7.5000e-004	2.0000e-005	7.6000e-004	0.0000	2.6332	2.6332	7.0000e-005	0.0000	2.6351

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.478390	0.030777	0.167800	0.120556	0.019513	0.006321	0.020235	0.145317	0.001626	0.001724	0.005916	0.000950	0.000877

5.0 Energy Detail

Historical Energy Use: N

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5.2 Energy by Land Use - Natural Gas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

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5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

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

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6.2 Area by SubCategory

Unmitigated

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

Mitigated

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

7.0 Water Detail

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7.1 Mitigation Measures Water

Use Reclaimed Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0269	0.0000	0.0000	0.0270
Unmitigated	0.0306	0.0000	0.0000	0.0307

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0.03	0.0306	0.0000	0.0000	0.0307
Total		0.0306	0.0000	0.0000	0.0307

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0.0264	0.0269	0.0000	0.0000	0.0270
Total		0.0269	0.0000	0.0000	0.0270

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

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8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Appendix B

Biological Constraints Analysis



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February 7, 2017
 Project No: 16-03475

Jessie Sager
 Environmental Permitting Manager
 SolarCity
 3055 Clearview Way
 San Mateo CA 94402-3709
 Via email: jsager@solarcity.com

Subject: **Biological Constraints Analysis for Alternatives 1-5 to the Berrenda Mesa Station A Project, Lost Hills, Kern County, California**

Dear Ms. Sager:

This letter documents the results of a biological constraints analysis performed for SolarCity at five alternative sites (Alternatives 1-5) to the Berrenda Mesa Station A Site in unincorporated Kern County, California. The purpose of this report is to identify the general site characteristics, including habitat type, likelihood of sensitive resources present, identification of obvious constraints, type and extent of specialized surveys needed, permits expected to be required, and probable mitigation costs associated with each Alternative. In particular, we have sought to identify if the Alternative has potential “fatal flaws” or would be relatively costly in terms of studies and mitigation to develop. It is our understanding that SolarCity is currently considering developing Alternatives 1-5 for the installation of solar panels and associated facilities. Location data for Alternatives 1-5 are presented in Table 1, and are depicted on Figure 1.

Table 1. Location Data for Alternatives 1-5

Alternative	Parcel Number(s)	Size (acres)	USGS Quadrangle	Township, Range, Section
1	057-080-09-00-5	481	Sawtooth Ridge	T26S, R18E, S4
2	043-132-18-02-6	85	Sawtooth Ridge	T25S, R18E, S35
3	057-070-25-00-8	241	Emigrant Hill	T26S, R18E, S1
4	057-152-01-00-5	650	Emigrant Hill	T26S, R19E, S7
	057-152-03-01-0			
	057-152-04-00-4			
	057-152-06-00-0			
	057-152-08-03-3			
5	057-152-36-00-7	159	Emigrant Hill	T25S, R19E, S30
	057-152-38-00-3			
	057-152-40-00-8			
	057-152-41-00-1			

Methodology

The biological constraints analysis consisted of a review of relevant literature followed by a field reconnaissance survey. The potential presence of special status species is based on a literature review and field survey designed to assess habitat suitability. Definitive surveys to confirm the presence or absence of special-status species were not performed. Definitive surveys for sensitive plant and wildlife species generally require specific survey protocols requiring extensive field survey time to be conducted only at certain times of the year. The findings and opinions conveyed in this report are based on this methodology.

Literature Review

The literature review included database research on special-status resource occurrences from the California Department of Fish and Wildlife (CDFW), California Natural Diversity Data Base (CNDDDB), Biogeographic Information and Observation System (BIOS) (<https://www.wildlife.ca.gov/Data/BIOS>), and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (<http://criticalhabitat.fws.gov>). Other resources included the California Native Plant Society's *Inventory of Rare and Endangered Plants of California* (2017); CDFW's *Special Animals List* (January 2017); and CDFW's *Special Vascular Plants, Bryophytes, and Lichens List* (January 2017). Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data in the area were also examined.

Field Reconnaissance Surveys

The surveys consisted of a visual inspection of Alternatives 1-5 and surrounding properties. The field reconnaissance surveys documented existing site conditions and the potential presence of sensitive biological resources, including special-status plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, protected trees, and wildlife movement corridors.

All dominant plant species observed within the survey areas were noted. Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, such as blooming period and emergence of some of the annual species. Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were noted. Similar to the floristic survey, fauna potentially present to be observed were limited by seasonal and temporal factors. The survey was performed during the day, so nocturnal animals were identified by sign if present; please note that lack of sign does not indicate lack of presence. Details of the survey parameters are presented in Table 2.

Table 2. Survey Details for Alternatives 1-5

Alternative	Survey Date	Surveyors	Weather Conditions
1	December 20, 2016	Robin Murray, Dannique Aalbu	54°F, winds 0-3 mph, clear skies
2	January 25, 2017	Robin Murray, Monica Jacinto	43°F, winds 1-3 mph, 20% cloud cover
3	January 25, 2017	Robin Murray, Monica Jacinto	48°F, winds 1-3 mph, 35% cloud cover
4	January 25, 2017	Robin Murray, Monica Jacinto	53°F, winds 1-3 mph, 50% cloud cover
5	December 20, 2016	Robin Murray, Dannique Aalbu	54°F, winds 0-3 mph, clear skies

Existing Conditions

Topography

Alternative 1

The project site has a topographic relief of approximately 40 feet, and appears to have been used as grazing land. The site generally slopes from north to south with a topographic low of about 675 feet occurring in the southeast portion of the site, reaching a maximum elevation of approximately 715 feet at the northeast corner of the site. Natural variations in the topography are present, although the site is generally flat.

Alternative 2

The project site has a topographic relief of approximately 95 feet, and is currently used as grazing land. The site generally slopes from south to north with a topographic low of about 510 feet occurring in the northeast portion of the site, reaching a maximum elevation of approximately 615 feet at the southwest corner of the site. Natural variations in the topography are present, although the site is generally flat.

Alternative 3

The project site has a topographic relief of approximately 80 feet, and appears to have been used as agricultural land in the past. The site generally slopes from southwest to northeast with a topographic low of about 570 feet occurring in the northeast portion of the site, reaching a maximum elevation of approximately 650 feet at the southwest corner of the site.

Alternative 4

The project site has a topographic relief of approximately 65 feet, and has been used as agricultural land. The site generally slopes from south to north with a topographic low of about 580 feet occurring in the northwest portion of the site, reaching a maximum elevation of approximately 645 feet at the southeast corner of the site.

Alternative 5

The project site has a topographic relief of approximately 35 feet, and appears to have been used as agricultural land. The site generally slopes from north to south with a topographic low of about 490 feet occurring in the southwest corner of the site, reaching a maximum elevation of approximately 525 feet at the northwest portion of the site.

Watershed and Drainages

All Alternatives are situated within the Tulare-Buena Vista Lakes watershed. No drainages occur within the Alternatives; however, Alternative 4 is bisected by an agricultural drainage ditch that is approximately five to 15 feet deep.

Current Land Use and Vegetation

Alternative 1

The 481-acre parcel is zoned Agricultural per the County of Kern Zoning Maps. The project site is grazing land dominated by non-native grass species and scattered Russian thistle (*Salsola tragus*). No native shrubs were present. No evidence of disking was observed. The site has natural variations present in the topography, and small mammal burrows were observed. Historical aerial photos indicate the site has been in use as rangeland since 1994 and probably earlier. The site is surrounded by grazing land to the north, east, and west, and a pistachio (*Pistachia vera*) orchard to the south. Two agricultural ponds are located immediately south of the site.

Alternative 2

The 85-acre parcel is zoned Agricultural per the County of Kern Zoning Maps. The project site is grazing land dominated by non-native grasses and redstem filaree (*Erodium cicutarium*) throughout, with allscale (*Atriplex polycarpa*) and alkali goldenbush (*Isocoma acradenia*) in moderate densities in the southern portion of the site. No evidence of disking was observed. The site has natural variations present in the topography, and small mammal burrows were observed. Historical aerial photos indicate the site has been in use as rangeland since 1994 and probably earlier. The project site is surrounded by grazing land. A spur of the California Aqueduct and an associated pumping station are located to the northwest.

Alternative 3

The 241-acre parcel is zoned Agricultural per the County of Kern Zoning Maps. The site is a fallow agricultural field, with very little vegetation. Plants that are present are ruderal, weedy species, primarily Russian thistle and annual grasses. No evidence of recent disking was observed. While uncommon, small mammal burrows were observed. Historical aerial photos indicate the site has been in agricultural use since 1994 and probably earlier. Vegetation communities immediately adjacent to the site include undeveloped grazing lands to the west and north, fallow agricultural fields and pistachio orchards to the south, and disturbed ruderal lands to the east.

Alternative 4

The 650-acre collection of parcels is zoned Agricultural per the County of Kern Zoning Maps. The site is bisected north to south by a large agricultural drainage ditch. The eastern half of the site is currently in active agricultural production. The western half of the site appears to have been used for agricultural production in the past, but is currently inactive. Scattered small mammal burrows were observed throughout this portion, as well as germinating annual non-native grasses. A collection of four inactive tanks that were used for crude oil storage is located near the center of the site, on the western half. This area is located in a high spot in the landscape, and does not appear to have been utilized for agriculture in the past. Vegetation consists of non-native annual grasses and scattered Russian thistle. Surrounding land uses include almond (*Prunus dulcis*) orchards to the east and west, pistachio orchards and grazing lands to the north, and uncultivated agricultural land as well as grazing lands to the south.

Alternative 5

The 159-acre parcel is zoned Agricultural per the County of Kern Zoning Maps. The site is a fallow agricultural field that shows evidence of recent disking. As a result, the site is nearly devoid of vegetation. A small agricultural basin is located at the site's southwest corner. Plants that are present are ruderal, weedy species such as redstem filaree and non-native annual grasses. Historical aerial photos indicate the site has been in active agricultural use since 1994 and probably earlier. The project site is surrounded by agricultural land to the east, and grazing land dominated by non-native annual grasses to the south, west, and north.

Wildlife

Wildlife species observed during the site visits are presented in Table 3.

Table 3. Wildlife Observed at Alternatives 1-5

Wildlife	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Birds					
double-crested cormorant (<i>Phalacrocorax auritus</i>)				•	
snowy egret (<i>Egretta thula</i>)		•		•	
great egret (<i>Ardea alba</i>)				•	
Canada goose (<i>Branta canadensis</i>)				•	
killdeer (<i>Charadrius vociferus</i>)			•		
red-tailed hawk (<i>Buteo jamaicensis</i>)	•			•	•
barn owl (<i>Tyto alba</i>)				•	
black phoebe (<i>Sayornis nigricans</i>)	•	•			
horned lark (<i>Eremophila alpestris</i>)			•	•	
American crow (<i>Corvus brachyrhynchos</i>)	•	•			•
common raven (<i>Corvus corax</i>)	•	•	•	•	•
European starling (<i>Sturnus vulgaris</i>)		•	•		
northern mockingbird (<i>Mimus polyglottos</i>)				•	
white-crowned sparrow (<i>Zonotrichia leucophrys</i>)	•	•	•	•	
western meadowlark (<i>Sturnella neglecta</i>)			•		
red-winged blackbird (<i>Agelaius phoeniceus</i>)	•			•	
Mammals					
small mammal burrows	•	•	•	•	
coyote (<i>Canis latrans</i>)	•	•	•	•	
raccoon tracks (<i>Procyon lotor</i>)			•	•	
Reptiles					
side-blotched lizard (<i>Uta stansburiana</i>)	•	•	•	•	

Natural and Environmental Resources

Special Status Species

Special-status plant and wildlife species typically have very specific habitat requirements; therefore, the potential presence of any sensitive species is dependent on the type of habitat available for establishment. No sensitive species were observed at Alternatives 1-5 during the field reconnaissance surveys.

Alternative 1

Review of the CNDDDB and existing literature regarding the project site identified historical occurrences of two special-status plant species and seven special-status wildlife species within five miles of the site. Due to the use of the site as grazing land, it is unlikely that special-status plant species are present; however, the potential remains for occurrence. Burrows were evident during the survey, including those that could support blunt nosed leopard lizard (*Gambelia sila*, federally endangered, state endangered, fully protected) and Nelson's antelope squirrel (*Ammospermophilus nelsoni*, state threatened). The habitat could also support San Joaquin kit fox (*Vulpes macrotis mutica*, federally endangered, state threatened) and burrowing owls (*Athene cunicularia*, species of special concern), although no burrows suitable for supporting the species were observed. San Joaquin kit fox could also occupy the site as transients, searching for prey and using the site as a movement corridor. The site provides suitable foraging habitat for Swainson's hawk (*Buteo swainsoni*). Additionally, the adjacent pistachio orchards may provide potential nesting habitat for Swainson's hawk.

Alternative 2

Review of the CNDDDB and existing literature regarding the project site identified historical occurrences of two special-status plant species and six special-status wildlife species within five miles of the site. Due to the use of the site as grazing land, it is unlikely that special-status plant species are present; however, the potential remains for occurrence. Burrows were evident during the survey, including those that could support blunt nosed leopard lizard and Nelson's antelope squirrel. The habitat could also support San Joaquin kit fox and burrowing owls, although no burrows suitable for supporting the species were observed. San Joaquin kit fox could also occupy the site as transients, searching for prey and using the site as a movement corridor. The site provides suitable foraging habitat for Swainson's hawk.

Alternative 3

Review of the CNDDDB and existing literature regarding the project site identified historical occurrences of four special-status plant species and six special-status wildlife species within five miles of the site. While uncommon, some burrows were present, including those that could support blunt nosed leopard lizard and Nelson's antelope squirrel. San Joaquin kit fox could occupy the site as transients, searching for prey and using the site as a movement corridor. The site provides marginal foraging habitat for Swainson's hawk, due to the scarcity of vegetation and burrows, which indicate a limited prey base. However, the adjacent pistachio orchards may provide potential nesting habitat for the species.

Alternative 4

Review of the CNDDDB and existing literature regarding the project site identified historical occurrences of three special-status plant species and six special-status wildlife species within five miles of the site. No burrows of any kind were evident on the eastern half of the site, including those that could support blunt nosed leopard lizard, burrowing owls or San Joaquin kit fox. While uncommon, some burrows capable of supporting blunt nosed leopard lizard and Nelson's antelope squirrel were present in the western half of the site. San Joaquin kit fox could occupy the western portion of the site as transients, searching for prey and using the agricultural roads as a movement corridor. One of the abandoned tanks on the western portion of the site is occupied by a pair of barn owls. Based on the accumulation of whitewash and pellets, it is highly likely that the owls are permanent residents.

Alternative 5

Review of the CNDDDB and existing literature regarding the project site identified historical occurrences of one special-status plant species and seven special-status wildlife species within five miles of the site, including historical records of blunt nosed leopard lizard (1974) and San Joaquin kit fox (1991) on the site. Despite the historical records, no burrows of any kind were evident during the survey, including those

that could support blunt nosed leopard lizard, burrowing owls, or San Joaquin kit fox. San Joaquin kit fox could occupy the site as transients, searching for prey and using the site as a movement corridor. The site provides poor foraging habitat for Swainson's hawk, due to the near absence of vegetation and burrows, which indicate a limited prey base. However, the adjacent pistachio orchards may provide potential nesting habitat for the species.

Sensitive Vegetation Communities

The sensitivity status of vegetation communities is determined by multiple criteria including restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities. These communities are considered sensitive whether or not they have been disturbed. No sensitive vegetation communities are present within or adjacent to Alternatives 1-5.

Nesting Birds

Under the provisions of the Migratory Bird Treaty Act of 1918 (MBTA), it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the U.S. Fish and Wildlife Service (FWS). The term "take" is defined by FWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities. In addition, the California Fish and Game Code (CFGC) extends protection to non-migratory birds identified as resident game birds (CFGC 3500) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (CFGC 3503). Alternative 4 contains barn owl (a bird-of-prey) likely on a permanent basis. Alternatives 1-5 provide suitable nesting habitat for protected ground-nesting birds such as killdeer. The orchards adjacent to Alternatives 1, 3, 4 and 5 also provide suitable nesting habitat for avian species.

Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. Wildlife movement corridors are considered sensitive by many resource and conservation agencies.

Alternatives 1-5 are all surrounded by agricultural or grazing lands and wildlife can currently move through the sites relatively unimpeded, though lack of food and cover limit the number of wildlife likely to be present. To the northwest of the Alternatives, the land is undeveloped, and potentially provides suitable habitat for a variety of mobile wildlife species. Wildlife may move from these undeveloped lands and traverse the Alternatives, though an offshoot of the California aqueduct serves as a barrier to movement from the western undeveloped areas to Alternatives 2-5 for a variety of small animals. The Alternatives do not contain any natural drainages that would facilitate wildlife movement. Due to its highly disturbed nature and regular maintenance regime, the agricultural ditch bisecting Alternative 4 does not serve as a good wildlife movement corridor. Therefore, the Alternatives are unlikely to serve as significant corridors that facilitate wildlife movement on a local or regional basis.

Jurisdictional Waters and Wetlands

A formal jurisdictional delineation was not conducted for Alternatives 1-5; however, no potentially jurisdictional waters or wetlands were observed within the sites. Regulatory agencies may assert jurisdiction over the agricultural ditch that bisects Alternative 4.

Other Regulated Areas

Alternatives 1-5 are located within the Habitat Conservation Plan (HCP) boundary of the Kern Valley Floor HCP, which is currently in the planning phase. The Alternatives are not located within any Natural Community Conservation Plan as indicated by the USFWS Critical Habitat portal or CDFW BIOS. No critical habitat is present within the vicinity of Alternatives 1-5.

Protected Trees

No trees protected by Kern County through either policy or ordinance are present within the project site.

Biological Constraints and Costs

Biological Resources Assessment

Rincon recommends that a detailed Biological Resources Assessment of the chosen Alternative be completed to provide the regulatory agencies with sufficient information to make CEQA findings on the project and to present appropriate mitigation strategies. The Biological Resources Assessment would include a detailed site assessment that outlines exact project impacts and incorporates any necessary mitigation measures to reduce impacts to special-status species, sensitive natural communities, and important wildlife areas and movement corridors. The typical cost for a Biological Resources Assessment is approximately \$4,000-\$5,000.

Blunt Nosed Leopard Lizard

Additional Studies

Due to the blunt nosed leopard lizard's status as federally endangered, state endangered, and fully protected, the USFWS and CDFW are particularly sensitive to any impacts that may occur to habitat with the potential to support the species. This includes impacts to any suitable habitat in the range of the species, including formerly cultivated agricultural lands as well as disturbed grazing lands. Surveys are typically required if small burrows are present in these areas, even if the habitat is not considered high quality. The cost for protocol-level blunt nosed leopard lizard surveys can vary, and is dependent on the size of the area to be surveyed. Surveys are not typically required in agricultural land that has been recently cultivated and where all burrows are absent. Based on the existing conditions within each Alternative, Rincon recommends protocol-level surveys for Alternatives 1, 2, and 3, and the western half of Alternative 4. The protocol for blunt nosed leopard lizard surveys mandates 12 survey days during the adult season of April 15 and July 15, and five additional survey days during the hatchling season of August 1 to September 15.

Permits

While it is possible to obtain an Incidental Take Permit (ITP) pursuant to Section 7(a)(2) or Section 10(a)1(B) of the Federal Endangered Species Act (FESA), CDFW is unable to issue an ITP pursuant to Section 2081(b) of the CFGC, based on the fully protected status of the species.

Project Implementation

Project-related ground disturbance must be initiated within one year of protocol-level surveys for the surveys to be considered valid. If surveys indicate blunt nosed leopard lizards do not occupy the site, then CDFW should be notified of the findings and of the intent to proceed with project implementation. The

project would then proceed without likelihood of legal risk. However, take of the species remains unauthorized.

San Joaquin Kit Fox

Additional Studies

As San Joaquin kit fox have been known to construct burrows in disturbed contexts, den sites are possible within Alternatives 1, 2, and 3, as well as the agricultural ditch bisecting Alternative 4 and the agricultural basin in Alternative 5. A survey/biological assessment of each site is recommended to determine presence of kit fox on or adjacent to the Alternatives. Early consultation with the USFWS and CDFW is also recommended to determine their level of concern for these locations.

Permits

The San Joaquin kit fox is federally listed as endangered and State listed as threatened. Direct or indirect impacts to the San Joaquin kit fox would likely require issuance of an Incidental Take Permit (ITP) pursuant to Section 7(a)(2) or Section 10(a)1(B) of the FESA, as well as an ITP pursuant to Section 2081(b) of the CFGC to comply with the CESA. In addition to impacts to individual animals, the FESA also includes habitat modification in its definition of “take.” Destruction of potential dens is considered “take” under the FESA and requires an ITP. Note that acquisition of a federal ITP through Section 10 consultation (i.e., without a federal nexus) can take up to two years.

Mitigation Fees

Kit foxes potentially forage throughout Alternatives 1-3, and most Alternatives are expected to be considered suitable as movement areas. The resource agencies have historically recommended and/or required compensatory mitigation for the conversion of agricultural land at a 1:1 or 1.1:1 ratio (preferably credit/acre). Per recent communications with agency personnel specific to solar projects, it is possible that no compensatory mitigation would be required if appropriate avoidance and minimization measures were implemented, such as installing wildlife friendly fencing or allowing natural vegetation growth within the solar arrays. If dens are found to occur within the chosen Alternative or if the site is determined to be occupied, mitigation can be achieved through payment into a conservation bank approved by both the USFWS and CDFW. Final approval of purchase of credits in a mitigation/conservation bank is at the discretion of the responsible agency.

Project Implementation

Prior to implementing the project, a pre-activity survey will need to be completed within the chosen Alternative to identify potential dens within the project site. This survey can be conducted at any time of year, but must be conducted 14 to 30 days prior to beginning ground disturbance, with a report submitted to the USFWS within five days of completion.

If the San Joaquin kit fox is identified on-site, consultation with the CDFW and USFWS is recommended before project activities commence. The result of this consultation may include a mitigation and monitoring plan.

Burrowing Owl and Other Nesting Birds

Additional Studies

Burrowing owl has the potential to nest within Alternatives 1, 2, and 3, as well as the agricultural ditch bisecting Alternative 4 and the agricultural basin in Alternative 5. Nesting bird surveys are recommended, with a separate report detailing burrowing owl recommended. Typically, pre-construction nesting bird surveys are required to comply with the CFGC and MBTA if construction occurs during the breeding season (February 1 to August 15). If construction commences outside of the nesting season, surveys can usually be avoided. A pre-construction survey of the chosen Alternative is anticipated to cost approximately \$2,000-\$4,000. In addition, biological monitoring may be required if active nests are

present during construction. Daily monitoring rates are approximately \$1,000, but depending on construction activities half-day monitoring may be adequate. This measure would apply to all Alternatives, but the likelihood of encountering nesting birds during the breeding season is greater for Alternatives 1, 2, and 3, than for Alternative 5. While the overall suitability for most nesting birds in Alternative 4 is low, it is highly likely that the pair of barn owls (protected bird-of-prey) observed during the surveys will remain residents of the abandoned tank onsite. Barn owls are often associated with human structures, and could continue residency within the site after construction of the solar facility if the tanks are not removed. Alternative mitigation, such as providing a suitable barn owl nest box, could allow for removal of the tanks.

Permits

Burrowing owl is a state species of concern that is also protected as a migratory raptor under CFGC and the US Migratory Bird Treaty Act, as are all other raptors such as barn owl. Although no formal permit is required, if present, a burrowing owl relocation plan may be prepared and implemented in close coordination with the resource agencies. Other native birds or their active nests cannot be harmed or removed under CFGC; instead appropriate buffers from active nest sites are employed during construction activities. This would apply to the barn owls within Alternative 4. However, as the site is large, even a 500-foot buffer from the occupied tanks would not significantly diminish the area available for array development. Pre-construction nesting bird surveys are typically conducted 30 to 7 days prior to initiation of ground disturbance activities and focuses on suitable nesting habitat within the site.

Project Implementation

The following general measures are likely to be required during the project permitting and construction phases to avoid and/or minimize take of nesting birds. The nesting season typically extends from February through August but varies based on species and local climatic conditions.

- Conduct preconstruction nesting bird surveys to determine the presence/absence, location, and status of any active nests on-site.
- Approximate 200-to 500-foot buffer is established around active nests and no construction within the buffer is allowed until a qualified biologist has determined that the nest is no longer active. Encroachment into the buffer can occur at the discretion of a qualified biologist in coordination with the CDFW.
- Implement burrowing owl relocation plan if necessary.
- For Alternative 4, implement barn owl relocation/mitigation plan.

Unoccupied raptor nests should not be removed unless authorized by the CDFW.

Limitations

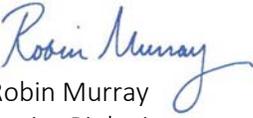
This limited biological analysis was prepared for use solely and exclusively by SolarCity as part of a due diligence review. No other use or disclosure is intended or authorized by Rincon Consultants, nor shall this analysis be relied upon or transferred to any other party without the express written consent of Rincon Consultants. SolarCity agrees to hold Rincon harmless for any inverse condemnation or devaluation of said property that may result if Rincon's report or information generated is used for other purposes. The findings and opinions conveyed in this analysis are based on the material reviewed and the limited field reconnaissance. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources reviewed.

SolarCity, Alternatives 1-5
Biological Constraints Analysis

Thank you for selecting Rincon Consultants to provide you with this due diligence service. Please call if you have questions, or if we can be of further assistance.

Sincerely,

Rincon Consultants, Inc.

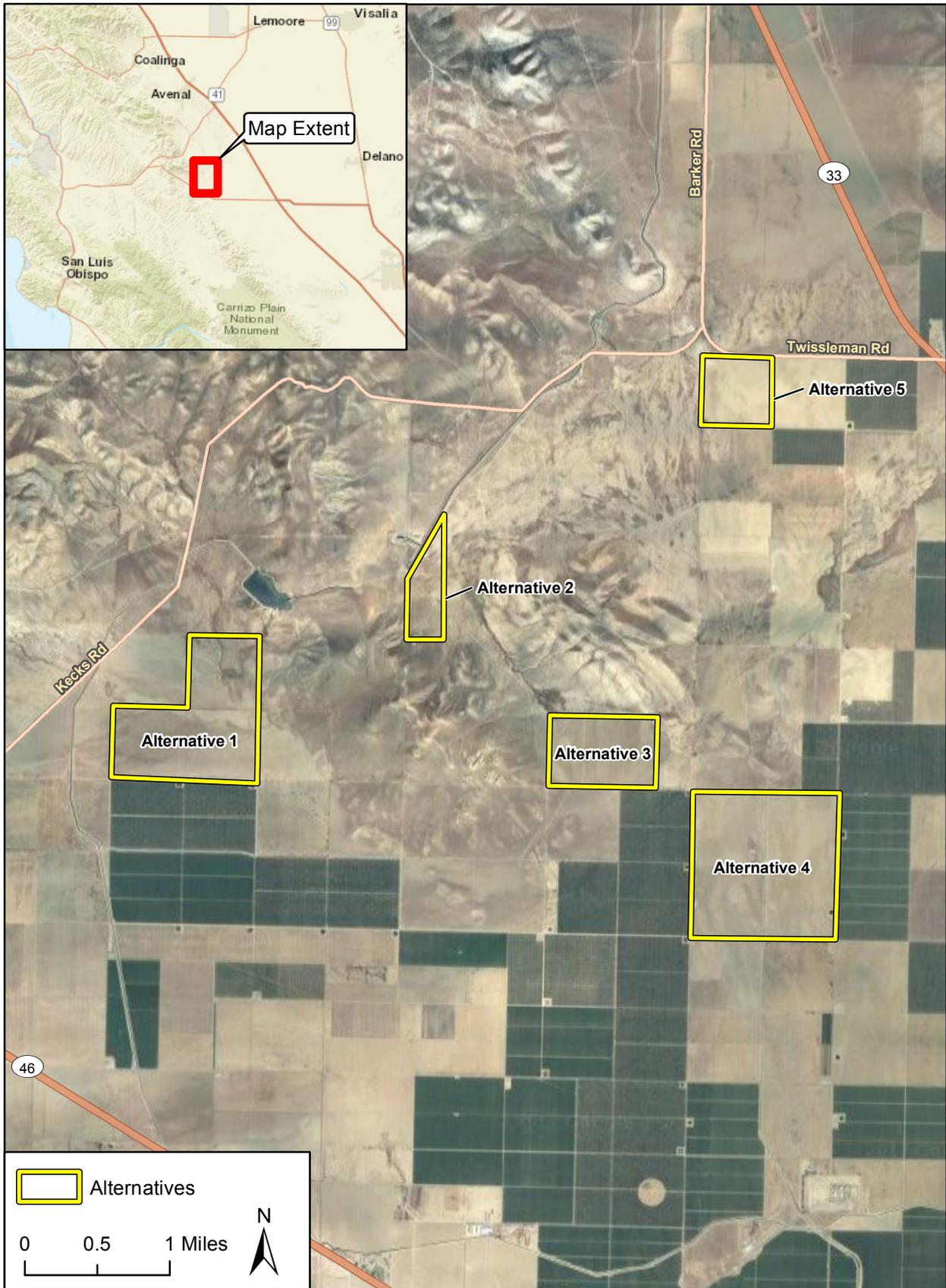


Robin Murray
Senior Biologist



Duane Vander Pluym, D. ESE
Principal / Senior Ecologist

Alternatives 1-5 to the Berrenda Mesa Station A Project
Biological Constraints Analysis



Imagery provided by Google and its licensors © 2017.

Alternatives 1-5

Appendix C

Burrowing Owl Survey Results



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September 22, 2017
Project No: 16-03475

Jessie Sager
Environmental Permitting Manager
Tesla
3055 Clearview Way
San Mateo CA 94402-3709
Via email: jsager@tesla.com

**Subject: Protocol Burrowing Owl Survey Results for the Proposed Berrenda Mesa Station A
Parcels, Kern County, California**

Dear Ms. Sager:

Rincon Consultants, Inc. (Rincon) is pleased to present this letter report documenting the results of protocol burrowing owl surveys conducted at the Berrenda Mesa Water District (BMWD) Station A Parcel (project site), in Kern County, California. The BMWD, in coordination with Tesla Energy, propose to construct an approximate 10 megawatt (MW) solar photovoltaic project to offset the current electrical demand of BMWD's Station A facility. These surveys were conducted to assess the project areas for potential habitat for burrowing owl (*Athene cunicularia*), identify potential burrows for the species, and to determine burrowing owl occupancy at the project areas. The surveys followed the methods outlined in the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game [CDFG] 2012¹) and included a habitat assessment site visit and three breeding season survey visits to the project site.

The project site consists of a single parcel located near the California Aqueduct (APN 057-070-25-00-8). The parcel is located north of State Route (SR) 46, east of Keck's Road, south of Twisselman Road, and west of SR-33. The 241-acre project site appears to have been historically used for agriculture. The site is depicted in Township 26 South, Range 18 East, Section 1 of the U.S. Geological Survey (USGS) *Emigrant Hill* 7.5-minute topographic quadrangle.

The Biological Constraints Analysis (BCA) performed by Rincon in 2016 described the project site as containing potentially suitable habitat for burrowing owl. Habitats within the project site are comprised of fallow agricultural fields. Ruderal, weedy plants, such as Russian thistle, *Amsinckia* sp., and non-native annual grasses, are present at the site. The proposed site for interconnection contains allscale scrub (*Atriplex polycarpa*) about 100-150 meters from the site. Fallow agriculture fields and pistachio orchards are adjacent to the site to the south, disturbed ruderal lands are present to the east, and undeveloped grazing lands are adjacent to the west and north.

¹ California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Sacramento, CA. 36 p.



Methods

Habitat Assessment

Rincon biologists Justin Jack and Alana Hunter conducted a habitat assessment survey at the project site on April 12, 2017, following the methods detailed in the *Staff Report on Burrowing Owl Mitigation: Appendix C. Habitat Assessment and Reporting Details*. The site visit at Berrenda Mesa Station A started at 11:50 a.m. with clear conditions and a temperature of 65°F. The site visit ended at 2:30 p.m. with clear conditions and a temperature of 71°F. The survey area included the project site and all publically accessible areas within 150 meters (492 feet) of the project site. Transects spaced between 7 and 20 meters (23 and 197 feet, respectively) apart were surveyed on foot throughout the survey area. In areas where vegetation density and/or height reduced the visibility of features at ground level the transect width was adjusted to attain 100 percent visibility. This methodology allowed for visual location of burrowing owls, their sign (e.g. feathers, pellets, whitewash, insect remains), or suitable burrows and/or burrow surrogates within the survey area. All suitable burrows were mapped using a Garmin GPS and approximate measurements of each burrow were recorded.

Breeding Season Surveys

Rincon biologists conducted three breeding season surveys of suitable habitat detected during the habitat assessment at the project site from May to July. Suitable habitat is defined in *Appendix A. Burrowing Owl Natural History and Threats of the Staff Report on Burrowing Owl Mitigation* as having short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils. Only suitable habitat identified during the habitat assessment was surveyed during the breeding season surveys: approximately 10.2 acres. Surveys adhered to the methodology described in *Appendix D. Breeding and Non-breeding Season Surveys and Reports of the Staff Report on Burrowing Owl Mitigation*. Walking line transects spaced to ensure 100 percent visibility of the suitable habitat were conducted, periodically scanning the project site for burrowing owls using binoculars. Any burrowing owls or potential burrows used by burrowing owls as determined by the presence of burrowing owl sign were mapped using a Garmin GPS. Dates, times, and conditions of each survey are recorded in Table 1.

Table 1. Breeding Season Survey Site Visits

Site Visit	Date	Time	Weather Conditions	Surveyors
Site Visit 1	May 26, 2017	0930-1015	Start: 68°F, 0.9 mph wind, 100% cloud cover End: 65°F, 2.7 mph wind, 100% cloud cover	Justin Jack, Kirsten Bates
Site Visit 2	June 16, 2017	0915-1000	Start: 87°F, 0.9 mph wind, 0% cloud cover End: 92°F, 2.7 mph wind, 0% cloud cover	Justin Jack, Alana Hunter
Site Visit 3	July 20, 2017	0900-0940	Start: 86°F, 5.0 mph wind, 5% cloud cover End: 88°F, 4.0 mph wind, 5% cloud cover	Justin Jack, Monica Cong



Survey Results

Habitat Assessment

No suitable burrows for burrowing owl were found at the Berrenda Mesa Station A site. Most of the site contains habitat that is not suitable for burrowing owl; at the time of the surveys, grasses covering most of the sight were 1-2 feet tall. However, there is allscale scrub 100-150 meters southeast of the proposed interconnection site. Small mammal burrows (approximately 1-2 inches) were found and could possibly belong to a kangaroo rat species. Common side-blotched lizards (*Uta stansburiana*), common raven (*Corvus corax*), western meadowlark (*Sturnella neglecta*), white-crowned sparrow (*Zonotrichia leucophrys*), horned lark (*Eremophila alpestris*), and red-tail hawk (*Buteo jamaicensis*) were observed during the site visit. Signs (scat) of coyote (*Canis latrans*) were present between the site and the interconnection point. A figure depicting the burrow locations (Figure 1) and preconstruction photographs are included below.

Breeding Season Surveys

Burrowing owls or their sign were not observed during breeding season surveys. No additional suitable burrows were identified. No sign of predators was observed.

It is recommended that preconstruction surveys be conducted seven days prior to initial ground disturbing activities. A monitor should be present during any horizontal directional drilling. It is also recommended that the construction personnel attend a Worker Environmental Awareness Training (WEAT) before the start of work. If work has not started before February 1 2018, breeding season surveys will have to be conducted again.

Thank you for the opportunity to work on this project. Please contact Lindsay Griffin if you have questions concerning the contents of this report. She may be reached by telephone at (805) 947-4843, or by email at lgriffin@rinconconsultants.com.

Sincerely,

Rincon Consultants, Inc.

Lindsay Griffin, CISEC, QSP
Senior Biologist/Project Manager

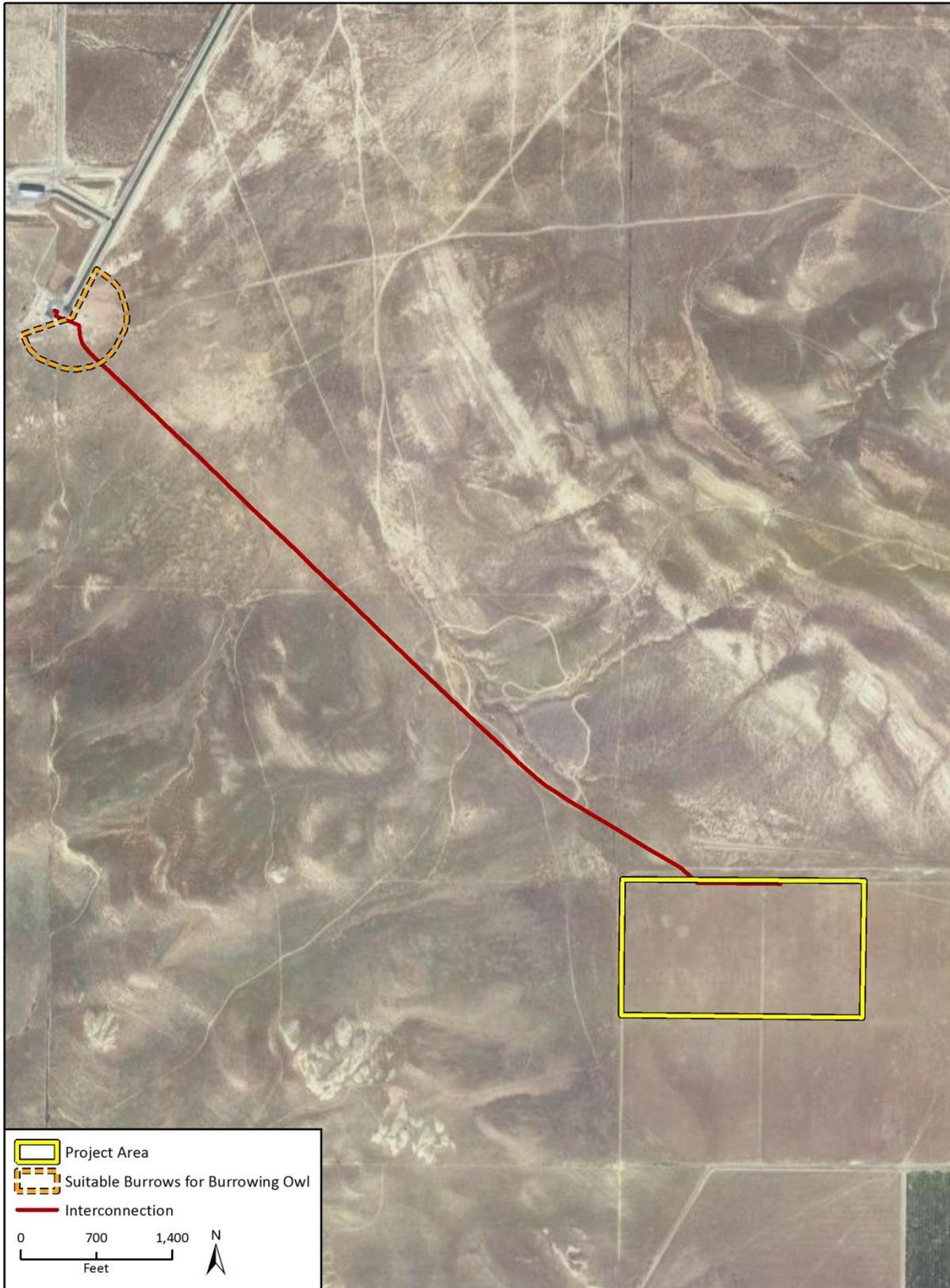
Steven J. Hongola
Principal / Senior Ecologist

Attachment - Appendix A: Figure 1 and Project Site Photographs



Appendix A

Figure 1 and Project Photographs



Imagery provided by Google and its licensors © 2017.

Fig 1 Berrenda Station A Project Footprint

Figure 1: Project Location



Photograph 1: Photo showing suitable habitat near northern area of interconnection



Photograph 2: Photo showing suitable habitat near northern area of interconnection



Photograph 3: photo showing project area; project area is not suitable area for burrowing owl

Appendix D

Blunt-Nosed Leopard Lizard Survey Results

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/7/17 Survey # 1

Level 2 Surveyor: Alex Brown

Project Name: Burrenda mesa str A

Level 1 Surveyor: Kenna Anderson

Habitat: Non-Native Grassland

Location: Approx. 20 miles W. of Lost Hills along dirt Rd.

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0846	83.3	85.6	0	0
Temp Check	1000	91.6			
Temp Check					
End	1120	94.7	104.8	4.6	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	47	8	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJ Kit Fox	—	—	Throughout site	Scat. No Burrows identified

Rodent Burrows Present?
 No
 Yes Plenty of ^{rodent available} burrows around the northern half of survey area

Additional Species Observed

- | | | | |
|---|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote | <input type="checkbox"/> Jackrabbit | <input type="checkbox"/> Snake _____ | <input checked="" type="checkbox"/> Pocket Gopher |

Notes: Kangaroo Rat burrows & tracks. NO GKR sign

Plants Tumbleweed Schismus Goldenbush
 Red brome turpentine weed Tocalote
 Red-stem filaree Popcorn flower Herniaria
 Dove weed Fiddleneck
 wire lettuce ~~Vulpia~~ microstachys
 fastuca

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/8/17 Survey # 2

Level 2 Surveyor: Alex Brown

Project Name: Berranda Mesa Sta A

Level 1 Surveyor: Julian Valenzuela

Habitat: Non-Native Grassland

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0816	77.0	75.6	1.2	50%
Temp Check	0856	80.2			
Temp Check					
End	1048	88.2	92.1	2.7	25%

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	56	7	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF			Throughout	Scat only

Burrows Present? No Yes _____

Additional Species Observed

- | | | | |
|--|---|---|--|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input checked="" type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat</u> | <input type="checkbox"/> Jackrabbit | <input type="checkbox"/> Snake _____ | <input checked="" type="checkbox"/> <u>Pocket Gopher</u> |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/9/17 Survey # 3

Level 2 Surveyor: Alex Brown

Project Name: Burranda Mesa Sta A

Level 1 Surveyor: Kenna Anderson

Habitat: NMG

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0919	77.2	71.6	1.9	25%
Temp Check	77				
Temp Check	1027	81.9			
End	1208	89.9	91.7	2.5	25%

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	39	4	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF			Throughout	Scat only

Burrows Present? No Yes _____

Additional Species Observed

- | | | | |
|--|---|---|--|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>scat</u> | <input checked="" type="checkbox"/> Jackrabbit | <input type="checkbox"/> Snake _____ | <input checked="" type="checkbox"/> <u>Pocket Gopher</u> |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/14/17 Survey # 4 Level 2 Surveyor: Alex Brown
 Project Name: Burranda Mesa Sta A Level 1 Surveyor: Kenna Anderson
 Habitat: MNVG Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0837	77.1	75.4	2.6	0
Temp Check	0950	86.2			
Temp Check					
End	1129	92.1	98.6	1.7	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	62	8	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF			Throughout	Scat

Burrows Present? No Yes _____

Additional Species Observed

- | | | | |
|--|--|---|--|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>scat</u> | <input checked="" type="checkbox"/> Jackrabbit | <input type="checkbox"/> Snake _____ | <input checked="" type="checkbox"/> <u>Pocket Gopher</u> |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/15/17 Survey # 5

Level 2 Surveyor: Alex Brown

Project Name: Barranca Mesa Sta A

Level 1 Surveyor: Julian Valenzuela

Habitat: NNG

Location: Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0750	79.6	83.9	1.7	0
Temp Check	0855	86.1			
Temp Check	0945	86.9			
End	1020	91.5	104.9	3.8	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	54	11	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF	Scat			Scat only

Additional Species Observed

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat</u> | <input checked="" type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/16/17 Survey # 6

Level 2 Surveyor: Alex Brown

Project Name: Burrenda Mesa Sta A

Level 1 Surveyor: Julian Valenzuela

Habitat: Non-Native Grassland

Location Lost H:115

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0738	78.4	79.1	3.3	0
Temp Check	0908	86.3		6.4	
Temp Check					
End	1006	92.4	96.9	7.5	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	77	8	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat only

Additional Species Observed

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input checked="" type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat</u> | <input type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input checked="" type="checkbox"/> <u>Killdeer</u> |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/17/17 Survey # 7

Level 2 Surveyor: Alex Brown

Project Name: Bernardo mesa Sta A

Level 1 Surveyor: Kenna Anderson

Habitat: NMG

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0745	77.5	76.8	1.9	0
Temp Check	0917	87.1			
Temp Check					
End	1010	93.9	101.6	2.1	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	59	9	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat on 17

Additional Species Observed

- | | | | |
|---|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat & Tracks</u> | <input type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 6/29/17 Survey # 8

Level 2 Surveyor: Alex Brown

Project Name: Berranda Mesa Sta A

Level 1 Surveyor: Julian Valenzuela

Habitat: NVG

Location _____

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0727	79.2	81.5	3.5	0
Temp Check	0840	89.4			
Temp Check					
End	0948	92.3	101.8	5.6	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0			0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat only

Additional Species Observed

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Track</u> <u>Scat</u> | <input checked="" type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 7/11/17 Survey # 9

Level 2 Surveyor: Alex Brown

Project Name: Berrinda Mesa

Level 1 Surveyor: Kenna Anderson

Habitat: Non-Native Grassland

Location: Los + H:115

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0745	77.2	74.9	3.5	10
Temp Check	0910	88.1			
Temp Check					
End	1038	92.2	93.1	3.4	15

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	63	7	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat only

Additional Species Observed

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat</u> | <input checked="" type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 7/12/17 Survey # 10

Level 2 Surveyor: Alex Brown

Project Name: Barranca Mesa

Level 1 Surveyor: Kenna Anderson

Habitat: RVNG

Location: Los Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0720	77.3	76.1	2.4	15
Temp Check	0840				
Temp Check					
End	0953	91.8	95.9	3.7	15

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	59	5	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				older Scat only

Additional Species Observed

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input checked="" type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote ^{fresh} scat | <input type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes: Unidentified hummingbird flew through survey area @ North end

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 7/13/17 Survey # 11

Level 2 Surveyor: Alex Brown

Project Name: Berranda Mesa

Level 1 Surveyor: Kenn Anderson

Habitat: MNG

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0707	77.0	75.8	1.9	0
Temp Check	0820	87.9			
Temp Check					
End	0950	90.6	91.9	2.7	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	50	6	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				older scat only

Additional Species Observed

- | | | | |
|---|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat Tracks</u> | <input type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 7/14/17 Survey # _____

Level 2 Surveyor: Alex Brown

Project Name: Berranda Mesa

Level 1 Surveyor: Kenna Anderson

Habitat: MVG

Location: Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0643	77.4	73.2	0.4	15
Temp Check	0807	89.8			
Temp Check	0919	93.9	99.6	1.7	0
End					

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	61	9	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat only

Additional Species Observed

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Raven | <input type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat</u> | <input type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Juvenile Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 8/17/17 Survey # 1

Level 2 Surveyor: A. Brown

Project Name: Bernarda Mesa

Level 1 Surveyor: K. Anderson

Habitat: Non-native Grassland

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0815	77.0	72.9	0.5	0
Temp Check	0930	85.6			
Temp Check					
End	1050	90.8	91.7	1.2	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	62	7	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SSKF				Scat - Nothing Else

Additional Species Observed

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote | <input type="checkbox"/> Jackrabbit | <input type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Juvenile Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 8/19/2017 Survey # 2

Level 2 Surveyor: J. Valenzuela

Project Name: Berrenda Mesa

Level 1 Surveyor: K. Anderson

Habitat: Non-Native Grassland

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	6:45	77.5	76.8	1.2	0
Temp Check					
Temp Check					
End	8:45	93.5	96.7	2.1	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	63	5	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes

Additional Species Observed

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input type="checkbox"/> Coyote | <input type="checkbox"/> Jackrabbit | <input type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Juvenile Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 8/20/17 Survey # 3

Level 2 Surveyor: A. Brown

Project Name: Bernanda Mesa

Level 1 Surveyor: K. Anderson

Habitat: Non-Native Grassland

Location 2051 H.415

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0715	78.2	74.6	6.7	10
Temp Check					
Temp Check					
End	0925	90.9	88.6	7.5	10

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	66	5	0	0

Sensitive Species Observed

Species	Age	Sex	Location (UTM)	Notes
SJKF-				Fresh scat

Additional Species Observed

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input type="checkbox"/> Coyote | <input checked="" type="checkbox"/> Jackrabbit | <input type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Juvenile Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 8/21/17 Survey # 4

Level 2 Surveyor: A. Brown

Project Name: Bernanda Mesa

Level 1 Surveyor: K. Anderson

Habitat: MNG

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0700	77.8	74.0	3.8	15
Temp Check					
Temp Check					
End	0850	85.2	82.1	6.9	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	53	4	0	0

Sensitive Species Observed

Species	Age	Sex	Location (UTM)	Notes

Additional Species Observed

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input checked="" type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input type="checkbox"/> Coyote _____ | <input checked="" type="checkbox"/> Jackrabbit | <input type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Juvenile Blunt-Nosed Leopard Lizard (BNLL) Field Form

Date: 8/31/17 Survey # 5

Level 2 Surveyor: A. Brown

Project Name: Burranda Mesa

Level 1 Surveyor: K. Anderson

Habitat: Non-native Grassland

Location Lost Hills

	Time	Air (°F)	Soil (°F)	Wind (MPH)	Cloud Cover %
Start	0720	78.4	76.8	0.7	0
Temp Check	0815	89.1			
Temp Check					
End	0905	93.2	99.7	1.1	0

Lizards	BNLL	Side-Blotched	Whiptail	Coast Horned	Fence
Count	0	51	4	0	0

Sensitive Species Observed				
Species	Age	Sex	Location (UTM)	Notes
SJKF				Scat only -

Additional Species Observed

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> Raven | <input checked="" type="checkbox"/> Mourning dove | <input type="checkbox"/> W. meadowlark | <input checked="" type="checkbox"/> Horned lark |
| <input checked="" type="checkbox"/> W. kingbird | <input type="checkbox"/> Red-tailed hawk | <input type="checkbox"/> CA ground squirrel | <input type="checkbox"/> Cottontail |
| <input checked="" type="checkbox"/> Coyote <u>Scat - fresh</u> | <input checked="" type="checkbox"/> Jackrabbit | <input checked="" type="checkbox"/> Pocket gopher | <input type="checkbox"/> _____ |

Notes:

Appendix E

Cultural Resources Technical Report



Berrenda Mesa Water District Solar Project

Cultural Resources Technical Report

prepared for

Tesla, Inc.

3500 Deer Creek Road
Palo Alto, California 94304

prepared by

Rincon Consultants, Inc.

180 North Ashwood Avenue
Ventura, California 93003

July 2019



RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers

rinconconsultants.com

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Appendices

Appendix A	Records Search Results	
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Executive Summary

Rincon Consultants, Inc. (Rincon) was retained by Tesla, Inc. (Tesla) to conduct a cultural resources study for the proposed Berrenda Mesa Water District (BMWD) Solar Project (project) in unincorporated northwestern Kern County, California. This cultural resources study included a cultural resources records search, Native American outreach, pedestrian field survey of the project site, and preparation of this technical report. This study has been completed in accordance with the requirements of the California Environmental Quality Act (CEQA).

Based on the results of the records search, Native American outreach, and field survey, no cultural (prehistoric or historic) resources were identified within the project site. Therefore, Rincon recommends a finding of ***no impact to historical resources*** for the purposes of CEQA. No further cultural resources work is recommended for the project.

Rincon presents the following recommendation in case of unanticipated discovery of cultural resources during project development. The project is also required to adhere to state regulations regarding the unanticipated discovery of human remains, detailed below

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

1 Introduction

Rincon Consultants, Inc. (Rincon) was retained by Tesla, Inc. (Tesla) to conduct a cultural resources study for the proposed Berrenda Mesa Water District (BMWD) Solar Project (project) in unincorporated northwestern Kern County, California. This cultural resources study included a cultural resources records search, pedestrian field survey, and preparation of this technical report. This study has been completed in accordance with the requirements of the California Environmental Quality Act (CEQA).

1.1 Project Location and Description

The project is located within Townships 25-26 south, Range 18 east, and Sections 01, 02, 12, 34, and 35 of the United States Geological Survey (USGS) *Sawtooth Ridge* and *Emigrant Hill, CA* 7.5-minute quadrangles (Figure 1). The project site consists of approximately 57 acres of fallow agricultural land north of State Route (SR) 46, west of SR 33, and southeast of Kecks Road and the California Aqueduct (Figure 2). The project site is approximately 1.5 miles southeast of the BMWD Pump Station A facility to which it will directly interconnect.

The project includes the construction and installation of a fenced and gated 8 megawatt (MW) solar photovoltaic (PV) energy generation facility. The project would consist of two large arrays including approximately 22,000 total PV panels mounted on a single-axis tracking system in order to maximize sunlight capture. Single-axis tracking systems allow the panels to follow the sun as it moves across the sky from east to west. The PV panels, when tilted to their maximum height, would be approximately eight feet above ground. The project would interconnect to an existing meter at BMWD Pump Station A, approximately 1.5 miles northwest of the project site. This interconnection would be achieved via installation of a new overhead electrical line approximately 8,000 feet in length. The point of interconnection may be installed using horizontal boring in order to avoid impacts to existing utilities. Project-related equipment such as the switchgear, inverters, and transformers would be constructed and mounted on outdoor pads distributed throughout the site. A maintenance and fire access road would be constructed in between and around the perimeter of the arrays and will connect the project area to existing farm roads to the south. A 10,000-gallon water tank will be installed within the project site in compliance with Kern County fire code standards.

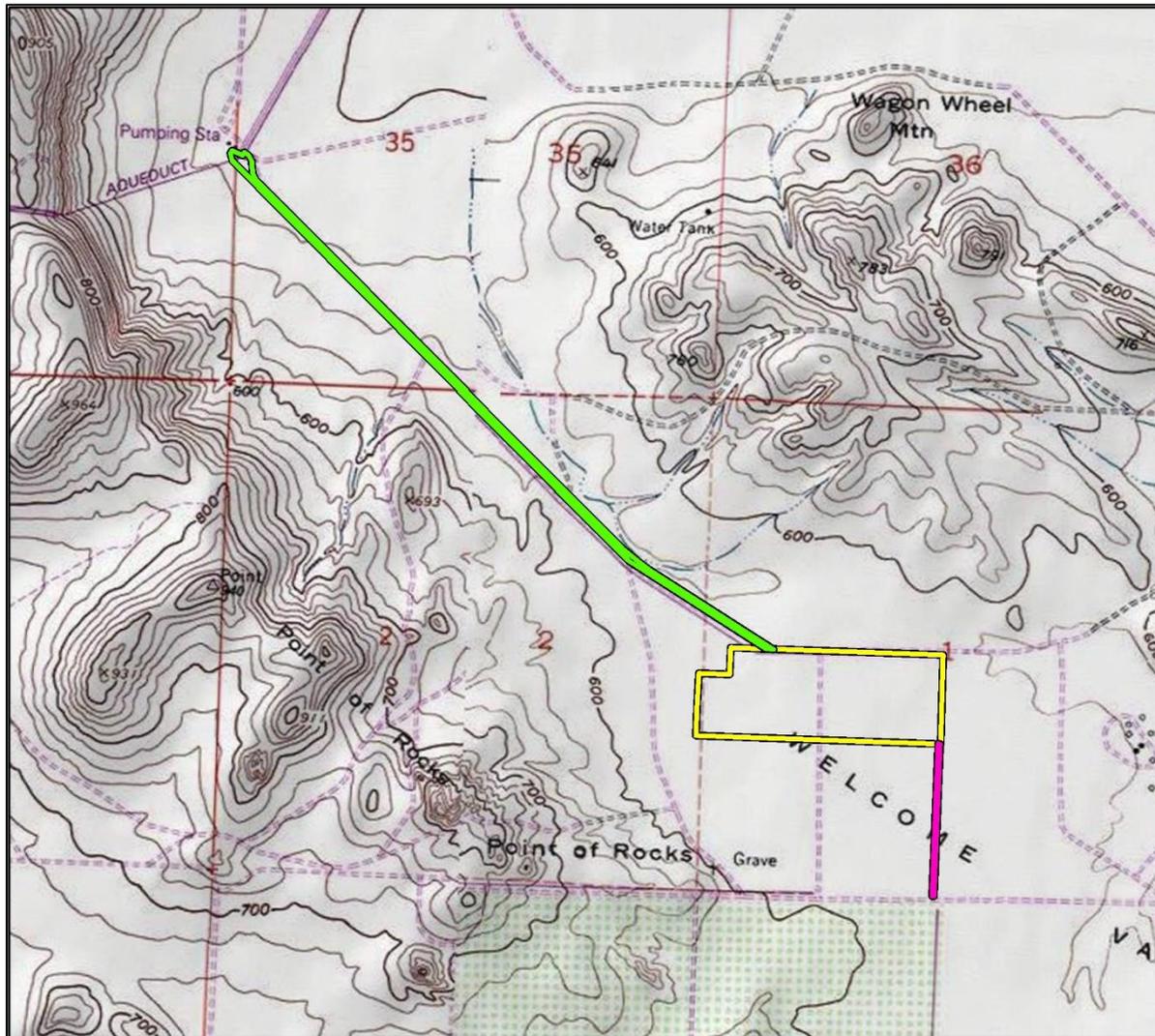
The project is intended to offset approximately 80 percent of the current electrical energy usage of BMWD's Station A facilities. The majority of BMWD's electricity needs are related to the pumping and conveyance of water from and along the California Aqueduct.

1.2 Construction

The proposed project would be constructed in four phases:

- Site Preparation and Civil Works
- Solar Array Installation

Figure 1 Project Location Map



Imagery provided by National Geographic Society, Esri and its licensors © 2019. Sawtooth Ridge & Emigrant Hill Quadrangles. T25S R18E S34,35 & T26S 18E S01,02,12. 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.

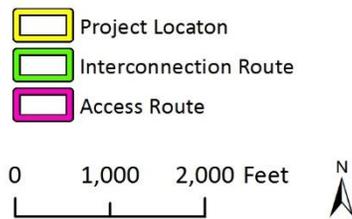
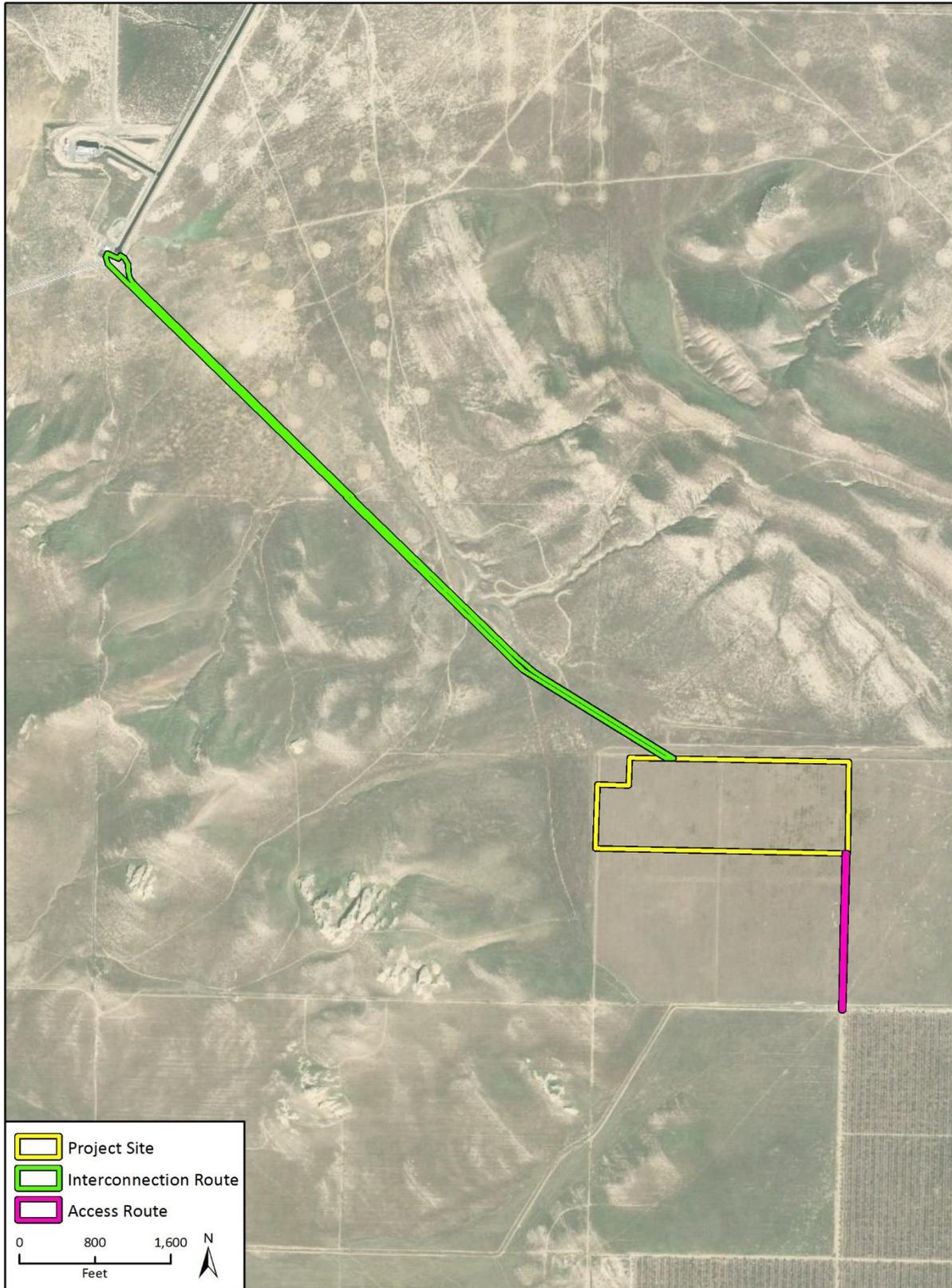


Figure 2 Project Site Map



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- Utility Installation for Interconnection
- Commissioning/Finishing

Project construction is expected to begin in April 2020 and be completed in October 2020, for a total duration of approximately six months. Construction of the proposed project would begin with initial clearing and grubbing of the site. Up to three temporary staging areas (approximately three acres each along the central easement corridor) would be established for construction worker parking, truck loading and unloading facilities, materials stockpiling, and racking assembly.

The panels would be mounted on pile-driven posts installed at a depth of between 5 and 10 feet. The panels and racking (i.e., PV module arrays) would cover approximately 38 acres of the 57-acre project site.

A maintenance and fire access road would be constructed in between and around the perimeter of the arrays, and to connect the project site to existing farm roads to the south. This road would total roughly 13,500 feet in length and 20 feet wide and would be covered with crushed rock and constructed to be at matching grade with the adjacent ground surface. Minor civil improvements to existing dirt roads between State Route (SR) 33 and the project site may be necessary and would be designed in consultation with Kern County Fire Department to confirm compliance with applicable fire code access requirements.

Interconnection of the solar array to existing facility meters would be achieved via installation of a new overhead electrical line approximately 8,000 feet in length. New power poles would be installed immediately adjacent to an existing disturbed dirt road within an existing BMWD utility easement. Spacing would be up to 150 feet between poles. Each overhead pole installation would require drilling a 3-foot diameter post hole approximately 10 feet deep. Temporary disturbance associated with pole installation (including equipment staging, excavation and stockpiling) would be up to 2,000 square feet (sf). Disturbance required to install the poles, including vehicle operation, would be contained within the existing disturbed road and utility easement. The final segment of the electrical run into the BMWD Station A facility meter and point of interconnection may be installed using horizontal boring up to 750 feet in length in order to avoid impacts to existing aboveground and near-surface utilities. The bored segment would require installation of 5-foot by 7-foot electrical service vaults at each terminus, the excavation for which would require three feet of additional space on each side of the bore pits. Temporary disturbance associated with vault installation (including equipment staging, excavation and stockpiling) would be up to 2,000 square feet. Disturbance required to conduct the boring and install the vaults, including vehicle operation, would be contained within the existing disturbed road and utility easement.

1.3 Personnel

Rincon Archaeologist Mark Strother, MA, conducted the pedestrian field survey of the project site and is the primary author of this report. Rincon Archaeologist Breana Campbell-King, MA, Registered Professional Archaeologist (RPA), provided management oversight for this cultural resources study and is a contributing author of this report. Ms. Campbell-King meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology (National Park Service 1983). Rincon Geographic Information Systems (GIS) Analyst Allysen Valencia prepared the figures for this report. Rincon Principal Christopher Duran, MA, RPA, reviewed this report for quality control.

2 Regulatory Setting

2.1 California Environmental Quality Act

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 which 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 which 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 having achieved significance within the past 50 years may also be eligible for inclusion in the CRHR, provided 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).

In addition, if it can be demonstrated a project would 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 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 clearly demonstrated, without merely adding to the current body of knowledge, there is a high probability it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in such 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 Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called tribal cultural resources (TCRs). AB 52 establishes “a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts which would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2. 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 PRC 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those having requested notice of projects proposed within the jurisdiction of the lead agency.

3 Background

3.1 Prehistoric Overview

California prehistory is generally divided into three broad time periods: Paleoindian period (ca. 13,500–10,500 Before Present [BP]), Archaic Period (11,500–850 BP) and Emergent Occupation (850 BP–European Contact). The prehistoric chronological sequence for the Central Valley presented here is based on Rosenthal et al. (2007) and Moratto (1984).

3.1.1 Paleoindian Period (13,500–10,500 BP)

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 13,500 to 11,500 BP. 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).

3.1.2 Lower Archaic (10,500–7,500 BP)

Climate change at the end of the Pleistocene caused significant periods of alluvial deposition beginning around 11,000 BP. The Lower Archaic, like the Paleoindian Period, is represented only by limited isolated finds. Only one Lower Archaic site (KER-116 in Kern County) in the Central Valley proper has been radiocarbon dated and few in the foothills surrounding the valley (Rosenthal et al. 2007; Rosenthal and Meyer 2004).

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).

3.1.3 Middle Archaic (7,500–2,500 BP)

The Middle Archaic began with substantial climate change to much warmer, drier conditions. Fans and floodplains stabilized after an initial period of deposition in 5,550 B.C. Archaeological deposits dating to the Middle Archaic are rare in the Central Valley proper due to these geomorphic changes. What is available of 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. Fishing technologies, such as bone gorges, hooks, and spears, also appear during the Middle Archaic suggesting a new focus on fishing. 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 became more frequent. Exchange with outside groups is evidenced by the presence of obsidian, shell beads and ornaments (Rosenthal et al. 2007; Moratto 1984). Trade also seemed to be focused on utilitarian items such as obsidian or finished obsidian tools from at least five separate sources (Moratto 1984).

3.1.4 Upper Archaic (2,500–850 BP)

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. 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).

3.1.5 Emergent Occupation (850 BP–European Contact)

The stable climatic conditions of the Upper Archaic continued into the Emergent Period. After 850 BP, 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 950 and 650 BP.

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, millstones, 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).

3.2 Ethnographic Overview

The San Joaquin Valley was historically occupied by the Penutian-speaking Yokuts (Kroeber 1925; Wallace 1978; Latta 1999). The project area is located in an area traditionally inhabited by the Southern Valley Yokuts (Wallace 1978). Adjacent native groups include the Northern Valley Yokuts to the north, Salinan and Costanoan to the west, Foothill Yokuts and Sierra Miwok to the east, Kitanemuk and Chumash to the south (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 permanent villages. 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).

Yokuts subsistence 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 a 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).

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 technology depended primarily on tule. Stems of the plant served as the raw material for baskets, cradles, boats, housing, and many other items. 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. Marine shells secured through trade with coastal peoples were used in the manufacture of shell money and personal adornment items (Wallace 1978).

3.3 Historic Overview

The post-Contact history of California is generally divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is briefly described below. The relative isolation of the Native Americans in the Central Valley and late European expansion into these areas created a long Proto-historic period for the region.

3.3.1 Spanish Period (1769–1822)

In 1542, Juan Rodriguez Cabrillo led the first European expedition to observe what is now called southern California (Bean and Smith 1978). For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta (upper) California coast and made limited inland expeditions, but they did not establish permanent inland settlements (Bean 1968; Rolle 2003).

Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement along the west coast of the modern United States in what was known as Alta California at Mission San Diego de Alcalá in 1769. Mission San Diego was the first of 21 missions established by the Spanish between 1769 and 1823. The missions were responsible for controlling the native populations as well as converting the population to Christianity (Engelhardt 1927b). No Spanish missions were established in the Antelope Valley, but local Native Americans were influenced by other native populations migrating to the area, driven from their homelands by the encroaching Spanish.

Although Portolá may have encountered a group of Tataviam during the 1769 explorations, the first known Spanish explorers to enter the Antelope Valley were a group of soldiers led by Pedro Fages in 1772. In 1776, Friar Francisco Garcés traveled through the valley coming from the Colorado River (Hoover et al. 2002:321). During the Juan Batista de Anza expedition, Friar Francisco Garcés reported “interaction with the Kitanemuk but very little historical information has been recorded on them” (Pacific Legacy 2008:14).

During this period, Spain also deeded a limited number of ranchos to prominent citizens and soldiers, few in comparison to the following Mexican Period. To manage and expand herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). The increased local population density and contact with European-brought diseases significantly reduced the Native American population (McCawley 1996). Native American populations in Kern County were less affected by the missions and the problems associated with European settlement of California. However, in some cases, individuals were taken from their tribes to be educated at one of the missions before being sent back (Morgan 1914).

3.3.2 Mexican Period (1822–1848)

The Mexican period commenced when news of the success of the Mexican Revolution (1810-1821) against the Spanish crown reached California in 1822. This period was an era of extensive interior land grant development and exploration by American fur trappers west of the Sierra Nevada Mountains. The California missions declined in power and were ultimately secularized in 1834. The hallmark of the Mexican period was large ranchos deeded to prominent Mexican citizens, frequently soldiers, by the governor. These ranchos became important economic and social centers; however, no ranchos were claimed in the arid Antelope Valley. Rancho La Liebre, straddling present Los

Berrenda Mesa Water District Solar Project

Angeles and Kern counties was the closest land grant located in the mountains west of the valley. Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and 1846, putting much of the state's lands into private ownership for the first time (Gumprecht 1999). Gold was found on Rancho San Francisco in 1842 at Placerita Canyon, the first to be found in California by European based settlers.

3.3.3 American Period (1848–Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico \$15 million for conquered territory including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. In 1850, California was admitted as the 31st state.

The discovery of gold in the foothills east of Sacramento led to the California Gold Rush in 1848, despite the first California gold being discovered in Placerita Canyon near the San Fernando Mission in 1842 (Guinn 1977). Cattle ranches continued to dominate Southern California in the early American period, though droughts and increasing population resulted in farming and more urban professions. These new developments increasingly supplanted ranching through the late nineteenth century. By 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to move into the state, particularly after the completion of the transcontinental railroad in 1869.

3.3.4 Kern County

The southern portion of what had been Tulare County as well as parts of Los Angeles and San Bernardino Counties officially became Kern County in 1866, following increased settlement in the area spurred by a growing interest in gold prospecting (San Joaquin Valley Geology 2019). Around this same time, settlers began to drain land and construct canals for farming. By 1874, Bakersfield became the County seat and agriculture was fully established as the foremost economic activity of the Central Valley (Guinn 1977). By the turn of the 20th century, the discovery of the Kern River oil field, boosted Kern County to the top oil-producing region in the state. To this day, oil drilling and agriculture remain the two dominant economic sectors in Kern County, particularly in the northern portion near the project site where oil fields and farms dominate the surrounding landscape (San Joaquin Valley Geology 2019).

4 Records Search and Outreach

4.1 Cultural Resources Records Search

On January 24, 2017, Rincon requested a search of the California Historical Resources Information System (CHRIS) at the Southern San Joaquin Valley Information Center (SSJVIC) located at California State University, Bakersfield. Rincon received the results of the records search on January 26, 2017. The purpose of the records search was to identify all previously recorded cultural resources, as well as previously conducted cultural resources studies within the five project areas and a 0.5-mile radius around them. The CHRIS search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of available historic maps and aerial photographs (Appendix A).

The SSJVIC records search identified two studies within the 0.5-mile buffer area around the project site. Neither study included the project site. These studies are listed in Table 1 below.

Table 1 Previously Conducted Cultural Resources Studies within 0.5-miles of the Project Site

Report Number	Author(s)	Year	Title	Relationship to Project Site
KE-00149	Orlins, R., E. Barter, G. Farris, H. McCarthy, and B. Rivers	1993	Coastal Branch, Phase II, State Water Project, Cultural Resources Survey and Extended Survey, Reaches 1 & 2, and Tank 1, Kern and San Luis Obispo Counties, California	Outside
KE-00632	Macdougall, A.	1994	Cultural Resource Investigation of PG&E's Proposed 70kV Transmission Line to the Department of Water Resources, Devil's Den, Bluestone and Polonio Pass Pumping Plants and PG&E's Proposed 12kV Distribution Line to the Department of Water Resources Tank 1 Water Treatment Plant	Outside

Source: Southern San Joaquin Valley Information Center, January 2017

The SCCIC records search identified no previously recorded cultural resources within the project site. Three resources are located within the 0.5-mile buffer area surrounding the project site. These resources are listed in Table 2 below. Although P-15-015820, California Aqueduct Milepost 279.44, is located outside of the project area, it is directly adjacent to the associated interconnection route. Built between 1960 and 1974 by the Department of California Water Resources (DWR) during the California State Water Project (SWP), the resource is the “largest and most significant of the water conveyance systems developed as part of the SWP. It is significant for its complex design necessary to redistribute water throughout the state on a massive level.” In 2012 the California State Historic Preservation Office determined that P-15-015820 is eligible for the National Register of Historic

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Places and listed it on the California Register of Historic Resources (Brewster and Ehringer 2013). The resource is in the same condition as its last record update in 2013.

Table 2 Previously Recorded Cultural Resources within 0.5-miles of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Project Areas
P-15-003811	CA-KER-003811/H	Prehistoric/historic site	Artifact scatter, bedrock milling features, building materials, domestic trash	R. Orlins, E. Barter, C. Savitski, J. Schulz, T. Wheeler (1991)	Not evaluated	Outside
P-15-003812	CA-KER-003812H	Historic site	U-shaped stone enclosure	C. Savotiski and J. Schulz (1992)	Not evaluated	Outside
P-15-015820	CA-KER-008698H	Historic structure	California Aqueduct Milepost 279.44	P. Murphy and C. Pruett (2008), J. Freeman and R. Flores (2009); P. Ambacher (2011); P. Daly (2012); C. Ehringer (2013)	NRHP eligible, CRHR listed	Outside

Source: Southern San Joaquin Valley Information Center, January 2017

4.2 Historical Imagery Review

A review of historical aerial photographs indicates the project site and surrounding area have been used for agriculture since at least 1994. There is no available aerial imagery of the project site dated prior to 1994. The California Aqueduct (P-15-015820), constructed in 1963, is visible on the 1974 topographic map for the area, but no other structures were noted in the area (NETR online 2019).

5 Field Survey

5.1 Methods

Rincon conducted a pedestrian field survey of the project site on June 26, 2019. The survey was performed using transect intervals spaced no greater than 15 meters apart moving from east to west. All exposed ground surfaces were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and 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 also visually inspected.

5.2 Results

The project site is comprised of fallow agricultural land (Figure 3 through Figure 5). Visibility of the ground surface throughout the project site was relatively poor (approximately 50 percent), due to dense vegetation. No cultural resources (prehistoric or historic) were identified during the pedestrian field survey.

Figure 3 Project Site Overview, View Southwest from Northeast Corner of Project Site



Figure 4 Project Site Overview, View North from Southern Access Route



Figure 5 Interconnection Route Overview, View Northwest from Northern Edge of Project Site



6 Findings and Recommendations

Based on the results of the records search and field survey, no cultural (prehistoric or historic) resources were identified within the Berrenda Mesa Water District Station A project site. Therefore, Rincon recommends a finding of ***no impact to historical resources*** for the purposes of CEQA; no additional work related to cultural resources is recommended for the project.

The following measures are recommended in the case of unanticipated discoveries of cultural resources or human remains during project execution.

6.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts.

6.2 Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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Appendix A

Records Search Results

Report List

SSJVIC Record Search 17-036

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
KE-00149	NADB-R - 1141141	1993	Orlins, Robert I., Barter, Eloise Richards, Farris, Glenn J., McCarthy, Helen, and Rivers, Betty J.	Coastal Branch, Phase II, State Water Project, Cultural Resources Survey and Extended Survey, Reaches 1 & 2, and Tank 1, Kern and S.L.O Counties, California	Biosystems Analysis, Inc.	15-003811, 15-003812, 15-003813, 15-003814
KE-00149		1993	Orlins, Robert I., Barter, Eloise Richards, Farris, Glenn J., McCarthy, Helen, and Rivers, Betty J.	Coastal Branch, Phase II - State Water Project - Cultural Resources Survey and Extended Survey - Reaches 1 and 2, and Tank 1 - Kern and San Luis Obispo Counties, California	State of California Department of Parks and Recreation	
KE-00632	NADB-R - 1140680	1994	Alison Macdougall	Cultural Resource Investigation of PG&E's Proposed 70 kV Transmission Line to the Department of Water Resources, Devil's Den, Bluestone and Polonio Pass Pumping Plants and PG&E's Proposed 12 kV Distribution Line to the Department of Water Resources Tank 1 Water Treatment Plant	PG&E	15-003811

Resource List

SSJVIC Record Search 17-036

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-15-003811	CA-KER-003811/H	Resource Name - Devils Den Prehistoric/Historic	Site	Prehistoric, Historic	AH04 (Privies/dumps/trash scatters); AH16 (Other) - Construction materials:burnt glass and brick; AP02 (Lithic scatter); AP04 (Bedrock milling feature) - Mortars	1991 (R. Orlins, E. Barter, C. Savitski, J. Schulz, T. Wheeler, California Department of Parks and Recreation)	KE-00149, KE- 00632
P-15-003812	CA-KER-003812H	Resource Name - Stone Enclosure-Devil's Den	Site	Historic	AH11 (Walls/fences) - Stone walls; HP98 (Stone Construction)	1992 (Christina Savotiski, Jeanette Schulz, California Department of Parks and Recreation)	KE-00149
P-15-015820	CA-KER-008698H	Resource Name - California Aqueduct; Resource Name - JFR-050; Resource Name - San Luis Canal; Resource Name - California Aqueduct main canal milepoint 173; Resource Name - California Aqueduct Milepost 279.44	Structure	Historic	HP20 (Canal/aqueduct)	2008 (Peggy Murphy & Catherine Pruett, Three Girls and a Shovel); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting, LLC.); 2011 (Patricia Ambacher, AECOM); 2012 (Pamela Daly, Daly & Associates); 2013 (C. Ehringer, ESA)	KE-03777, KE- 04539

Appendix F

Fuel Calculation Sheets

BMWD 8-MW Solar Project

Last Updated: 07/22/2019

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors [1]:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
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Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT						
Construction Equipment	#	Hours per		Load Factor	Construction Phase	Fuel Used (gallons)
		Day	Horsepower			
Excavators	1	8	158	0.38	Site Prep	660.12
Generator Sets	1	8	84	0.74	Site Prep	759.78
Graders	1	8	187	0.41	Site Prep	842.96
Off-Highway Trucks	1	4	402	0.38	Site Prep	839.77
Plate Compactors	1	8	8	0.43	Site Prep	42.05
Bore/Drill Rigs	1	8	221	0.50	Trenching	1,401.82
Excavators	1	6	158	0.38	Trenching	571.26
Forklifts	1	6	89	0.20	Trenching	188.28
Generator Sets	1	2	84	0.74	Trenching	219.17
Off-Highway Trucks	1	2	402	0.38	Trenching	484.48
Tractors/Loaders/Backhoes	1	6	97	0.37	Trenching	379.63
Bore/Drill Rigs	1	8	221	0.50	Building - Array	2,850.37
Cranes	4	7	231	0.29	Building - Array	6,048.07
Excavators	1	8	158	0.38	Building - Array	1,548.74
Generator Sets	1	8	84	0.74	Building - Array	1,782.56
Off-Highway Trucks	1	8	402	0.38	Building - Array	3,940.47
Plate Compactors	1	8	8	0.43	Building - Array	98.65
Tractors/Loaders/Backhoes	2	7	97	0.37	Building - Array	1,801.13
Forklifts	1	6	89	0.20	Building - Commissioning	100.42
Generator Sets	1	6	84	0.74	Building - Commissioning	350.67
Skid Steer Loaders	1	6	65	0.37	Building - Commissioning	135.67
Total Fuel Used						25,046.07
						(Gallons)

Construction Phase	Days of Operation
Site Preparation Phase	26
Trenching	30
Building Construction - Array	
Building	61
Building Construction - Commissioning	
Commissioning	16
Total Days	133

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Prep Phase	24.0	28	16.8	509.60
Trenching Phase	24.0	28	16.8	588.00
Building - Array Phase	24.0	28	16.8	1195.60
Building - Commissioning Phase	24.0	28	16.8	313.60
Total				2,606.80

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Site Prep Phase	7.4	31	20.0	83.78
Trenching Phase	7.4	0	20.0	0.00
Building - Array Phase	7.4	0	20.0	0.00
Building - Commissioning Phase	7.4	0	20.0	0.00
Total				83.78
VENDOR TRIPS				
Site Prep Phase	7.4	0	6.6	0.00
Trenching Phase	7.4	128	6.6	3424.86
Building - Array Phase	7.4	0	6.6	0.00
Building - Commissioning Phase	7.4	0	6.6	0.00
Total				3,424.86

Total Gasoline Consumption (gallons)	2,606.80
Total Diesel Consumption (gallons)	28,554.71

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b*. July 2018. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018*. Available at: <https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf>.

BMW D 8-MW Solar Project

Last Updated: 08/05/2019

Populate one of the following tables (Leave the other blank):

Annual VMT*	OR	Daily Vehicle Trips
Annual VMT: 403		Daily Vehicle Trips: Average Trip Distance:

Fleet Class	Fleet Mix	Fuel Economy (MPG)	
Light Duty Auto (LDA)	0.478390	Passenger Vehicles	24.0
Light Duty Truck 1 (LDT1)	0.030777	Light-Med Duty Trucks	17.4
Light Duty Truck 2 (LDT2)	0.167800	Heavy Trucks/Other	7.4
Medium Duty Vehicle (MDV)	0.120556	Motorcycles	43.9
Light Heavy Duty 1 (LHD1)	0.019513		
Light Heavy Duty 2 (LHD2)	0.006321		
Medium Heavy Duty (MHD)	0.020235		
Heavy Heavy Duty (HHD)	0.145317		
Other Bus (OBUS)	0.001626		
Urban Bus (UBUS)	0.001724		
School Bus (SBUS)	0.005916		
Motorhome (MH)	0.000950		
Motorcycle (MCY)	0.000877		

Fleet Mix					
Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	47.84%	<i>Gasoline</i>	193	0.00	8.04
Light-Medium Duty Trucks	31.91%	<i>Gasoline</i>	129	0.00	7.40
Heavy Trucks/Other	20.16%	<i>Diesel</i>	81	0.00	10.98
Motorcycle	0.09%	<i>Gasoline</i>	0	0.00	0.01

Total Gasoline Consumption (gallons)	15.44
Total Diesel Consumption (gallons)	10.98

*VMT was calculated based on the following assumptions: (1) two maintenance visits to the site per year, (2) two workers per maintenance visit, (3) three days per visit, and (4) 16.8-mile one-way trip length.