INITIAL STUDY

Gibson Solar Farm
Use Permit

Zone File # 2020-0043

Lead Agency

Yolo County Department of Community Services
Planning Division
292 West Beamer Street
Woodland, CA, 95695-2598

Technical Assistance Provided by

Aspen environmental group

October 2021

Contents

Tables

Figures

Photos

Appendices

1. Introduction

Gibson Renewables, LLC is seeking to construct and operate a 20-megawatt alternating current (MWac) solar photovoltaic (PV) electricity generating facility with a 6.5 MWac/26 megawatt hour (MWh) Battery Energy Storage System (BESS) called Gibson Solar Farm ("Project") on approximately 147 acres of land 1.2 miles east of Esparto in an unincorporated area of Yolo County. This proposed Project is a request for a Use Permit to construct the Solar Farm. The Project will use PV modules mounted on single-axis sun tracking support structures to generate 20 MWac of renewable electrical energy. The electricity generated by the PV field will be used in part for charging the batteries and the remaining energy generated by the PV field will be delivered to the grid. The batteries will discharge the stored energy during a 4-hour period providing 26 MWh of renewable energy. Electricity generated by the project will be interconnected to the Pacific Gas and Electric (PG&E) electrical distribution system at the existing 21-kilovolt (kV) Madison Substation, located about 4,650 feet (0.88 miles) east of the Project on County Road (CR) 89.

Of the 147.4-acre parcel, the PV field would cover approximately 34.4 acres with solar panels, and about 5.5 acres would be used for access roads, equipment, and other facility components. The remaining 107.5 acres would be the undeveloped area between the solar arrays. The surrounding area consists of flat agricultural land to the north, east, west, and south, with the community of Madison about 0.6 miles to the east.

2. Regulatory Framework

CEQA

The Yolo County (County) Department of Community Services Planning Division has identified that the Gibson Solar Farm Project meets the California Environmental Quality Act (CEQA) Guidelines Section 15378 definition of a Project. CEQA Guidelines Section 15378 defines a Project as the following:

> *"Project" means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.*

In accordance with CEQA (Public Resources Code Sections 21000-21177), this Initial Study has been prepared to determine potentially significant impacts upon the environment resulting from the construction, operation, and maintenance of the Gibson Solar Farm Project (hereinafter referred to as the "Project" or "proposed Project"). In accordance with Section 15063 of the State *CEQA Guidelines*, this Initial Study is a preliminary analysis prepared by the Yolo County Department of Community Services Planning Division as Lead Agency to inform the Lead Agency decision makers, other affected agencies, and the public, of potential environmental impacts associated with the implementation of the proposed Project.

3. Environmental Checklist Form

1.	**Project Title:**	Gibson Solar Farm Use Permit (ZF2020-0043)
2.	**Lead Agency Name:**	Yolo County Department of Community Services
	Address:	292 West Beamer Street, Woodland, CA 95695
3.	**Contact Person and Phone Number:**	Tracy Gonzalez, Junior Planner tracy.gonzalez@yolocounty.org (530) 666-8803
4.	**Project Location:**	The proposed Project is located at State Route (SR) 16, Madison, CA 95653, approximately 2 miles west of Interstate 505 (I-505), approximately 0.6 miles west of the unincorporated community of Madison, and about 1.2 miles east of the unincorporated community of Esparto, within Yolo County, California. The parcel is situated adjacent to the south side of SR 16.
	Latitude/Longitude:	Latitude/Longitude: 38°41'4.45" N, 121°59'21.00" W
	Site Access:	Site access would be from SR 16. Heading west on SR 16 from I-505. It is the second parcel past the community of Madison. Turn south into the facility driveway.
	Project Sponsor:	Gibson Renewables, LLC
	Name and Address:	Jamie Nagel Gibson Renewables, LLC 5000 Hopyard Road, Suite 302 Pleasanton, CA 94588 (916) 803-0950 Jamie.Nagel@renesolapower.com
6.	**General Plan/Zoning Designation:**	Agriculture (AG)/Agricultural Intensive (A-N)

8. Project Description Summary:

The Project will use solar photovoltaic (PV) modules mounted on single-axis sun tracking support structures to generate 20 megawatts alternating current (MWac) of renewable electrical energy. The electricity generated by the PV field will be used in part for charging batteries, and the remaining energy generated by the PV field will be delivered to the grid. The batteries will discharge the stored energy during a 4-hour period providing 26 megawatt hours (MWh) of renewable energy. Electricity generated by the project will be interconnected to the PG&E electrical distribution system by connecting to an existing 21-kilovolt (kV) distribution line that goes to the Madison Substation.

The proposed 147-acre Project will disturb a total of about 40 acres, while the undeveloped area under and between the solar arrays would occupy approximately 107 acres and would be available for use as a stable grassland/pollinator plant substrate. Details of the Project are further discussed in Section 4.

9. Surrounding Land Uses and Setting:

Relation to Project	Land Use	Zoning	General Plan Designation
Project Site	Agricultural (alfalfa, tomatoes)	Agricultural Intensive (A-N)	Agriculture (AG)
North	Agricultural (row crop, orchard)	Agricultural Intensive (A-N)	Agriculture (AG)
South	Residence, Agricultural (almonds)	Agricultural Intensive (A-N)	Agriculture (AG)
East	Agricultural (orchard)	Agricultural Intensive (A-N)	Agriculture (AG)
West	Agricultural (row crops)	Agricultural Intensive (A-N)	Agriculture (AG)

10. Other Public Agencies Whose Approval is Required:

Project shall comply with all permitting requirements from the Yolo County Building Division, Public Works Division, and Division of Environmental Health.

11. Have California Native American tribes traditionally affiliated with the Project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation?

On March 26, 2021, Yolo County Department of Community Services sent AB 52 notification letters to a total of five tribes that had previously submitted a written request to the County to receive notification of proposed projects. These tribes included the Yocha Dehe Wintun Nation, Wilton Rancheria, Cortina Rancheria Band of Wintun Indians of California, Ione Band of Miwok Indians, and Torres-Martinez Desert Cahuilla Indians. The Ione Band of Miwok Indians was sent a hard copy letter because an email address is not on file with the County; whereas, the other tribes were sent the notification letter via email.

None of the five tribes contacted requested formal AB 52 consultation. Only the Wilton Rancheria, responded to the notification letter indicating that the tribe had no concerns with this Project.

On March 18, 2021, Yocha Dehe Wintun Nation's Cultural Resources Manager Laverne Bill provided a response to the outreach effort from the County. Mr. Bill determined that the Project is within the aboriginal territories of the Yocha Dehe Wintun Nation and that the Nation has a cultural interest and authority in the proposed Project Area. Additional information is provided in Section 5.5 Cultural Resources and Section 5.18, Tribal Cultural Resources.

3.1 Environmental Factors Potentially Affected

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

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

3.2 Environmental Determination

On the basis of this initial evaluation:

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

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

☒ I find that the Proposed Project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

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

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

		Tracy Gonzalez
Planner's Signature	Date	Junior Planner

4. Project Description

4.1 Introduction

Gibson Renewables, LLC is seeking to construct and operate a solar photovoltaic (PV) electricity generating facility with the capacity to generate up to 20 megawatts alternating current (MWac) of renewable electrical energy during peak periods of production. The Gibson Solar Farm Project (Project) would also include a 6.5 MWac/26 megawatt-hour (MWh) Battery Energy Storage System (BESS). The facility would be designed to operate year-round and would generate electricity during the daylight hours when local electricity demand is typically at its peak. The major components of the facility include PV modules, single-axis sun tracking support structures, BESS, and electronic/electrical equipment to convert the electricity from the PV modules from direct current (DC) to alternating current (AC) electricity and transfer the electricity to the Pacific Gas and Electric (PG&E) Madison Substation via a short generation tie line (gen-tie line), which will be either underground or overhead, that connects the plant to existing overhead 21-kilovolt (kV) distribution line.

The Project would be constructed on a 147.42-acre parcel of land, 0.6 miles west of Madison in unincorporated Yolo County (Figure 4-1, Project Vicinity; all figures are located at the end of the section). The PV modules themselves would cover approximately 34.4 acres, and the area used for access roads, equipment, and other fixtures would require another 5.5 acres. Hence, the total Project footprint would cover 39.9 acres. Because spacing between the parallel arrays is about 14 feet—to minimize inter-row shading of the sun—more than 107 acres would be available for use as a stable grassland/pollinator plant substrate (Figure 4-2, Site Plan). The Project would be located on a parcel that is currently in agricultural production and is surrounded by orchards and dry field crops (Figure 4-3, Surrounding Land Uses). The parcel is currently under a Williamson Act Contract (Contract #71-206).

A multi-use plan for the Project site has been proposed to support pollinators, grazing, growing native plants, host apiary use at the site, and carry out "agrivoltaics" (the practice of having agricultural uses in and around large-scale solar PV farms). Agrivoltaics is described further in this section.

4.2 Project Objectives

The Project would use solar PV modules mounted on single-axis sun-tracking support structures to generate 20 MWac of renewable electrical energy. The electricity generated by the PV field would be used in part for charging the batteries and the remaining energy generated by the PV field would be delivered to the grid. The batteries would discharge the stored energy during a 4-hour period providing 26 MWh of peak renewable energy. Electricity generated by the Project would be interconnected to the PG&E electrical distribution system.

The Project has a Power Purchase Agreement (PPA) with Valley Clean Energy (VCE), a community choice aggregation (CCA) public agency that focuses on providing its 150,000 customers with cost competitive renewable energy and local reinvestment. VCE is a public, not-for profit joint powers authority, serving customers in the cities of Woodland, Davis, and unincorporated Yolo County. This Project would help VCE to achieve 35 percent of total local renewable procurement from Yolo County and neighboring counties.

4.3 Project Components

The Project would require the following major components:

PV Modules

The PV cells would be made from crystalline silicon materials, which would be dark in color, non-reflective, and highly absorptive of the sunlight that strikes their surfaces. Each PV module is about 6 feet long, 3 feet wide, and 3 inches thick with a weight of about 50 pounds. A number of PV modules would be wired together in series and parallel configurations and connected to DC-to-AC inverters and transformers located throughout the Project site.

The PV modules deployed for use in the Gibson Solar Farm project would comply with all industry quality standards and be stringently tested and robustly constructed to guarantee a useful life of 25 to 30 years in all weather conditions.

Support Structures

The PV modules would be mounted on steel support structures designed and installed to properly position the PV modules to maximize the amount of sunlight that can land upon their surfaces. The single-axis sun tracking arrays (a row of PV modules) would be oriented along a north-south axis to allow the PV modules to rotate from east to west to follow the sun's path throughout the day. The parallel array rows would be separated and spaced every 21 feet (allowing 7 feet for the solar panels and 14 feet open area) to minimize inter-row shading of the sun and allow for vegetation management.

These support structures are typically mounted on foundations of steel beams or tubes directly embedded into the ground to a depth of 5 to 8 feet depending upon loading and soil conditions. Generally, these structural elements are driven into the earth with vibratory or hydraulic press-in methods. This type of driven pier foundation offers multiple benefits, including quick installation and minimal site disturbance, and is a "concrete-free" foundation solution that would allow for easy site restoration at the end of the Project life-cycle. The PV modules, at their highest point of the solar tracking during the day, would be less than 9 feet above the ground surface; with their base about 3 feet above the ground.

Battery Energy Storage System

Battery energy storage systems are rechargeable battery systems that store energy from the solar system during daylight or from the grid as scheduled by the utilities. Intelligent battery software uses algorithms to coordinate solar production, usage history, utility rate structures, and weather patterns to optimize when the stored energy is used. Energy is discharged from the BESS during times of high usage, reducing or eliminating costly peak demand charges.

Energy storage allows solar energy production to mimic the consistency of fossil fuel energy sources. For utility-scale customers, battery energy storage can provide a host of valuable applications, including reserve capacity, frequency regulation, and voltage control to the grid.

This Project plans to use lithium iron phosphate (LFP) batteries, which are more stable than the common lithium-ion batteries and are required to pass stringent fire safety standards. Each energy storage unit contains several components: one or more battery modules, onboard sensors, control components, and an inverter. In DC-coupled units, the inverter is integrated into the system. These components make energy storage systems more than mere batteries. The battery module can be swapped out for another with no

downtime. Sensors ensure safe operation and allow for remote monitoring. Onboard sensors help maintain appropriate operating temperatures, watch for battery module failure, and report usage data to the energy company. Control components allow batteries to be charged automatically when energy is at the lowest rate and discharge automatically when it is at a higher rate, or they can be configured to simply store energy in case of a power outage. The other key components include built-in cooling systems, weatherproof construction, and scalable architecture. These components make the BESS safe, scalable, and cost-effective.

Electronic/Electrical Equipment

The DC electrical output from the PV modules would be transferred to inverters that convert the DC energy to high-quality utility-grade AC electricity. Electrical transformers would be used to boost the AC voltage output of the inverters to the 21 kV level required to interconnect to PG&E's existing overhead distribution circuit. Three power poles will be installed in the southeastern corner of the site (the point of interconnection, see Figure 4-2, Site Plan). From these poles, a gen-tie line would be installed running south, through the existing orchards, along the east side of the parcel toward County Road (CR) 23 for approximately 2,400 feet where it would be connected to an existing 21kV distribution system owned by PG&E (see Figure 4-1, Project Vicinity). If the gen-tie line is overhead, it is expected to require up to 10 treated wood poles compliant with all applicable utility standards, with up to approximately 300 feet between each pole. Each pole would be approximately 37 feet tall, and foundation sizes would range from 6 to 8 feet in diameter. Holes would range from 20 to 30 feet deep and would be augured wherever feasible. Poles would be set in poured concrete foundations within the holes. Structures and conductor support hardware would be assembled at each pole location.

The applicant is also considering undergrounding the gen-tie line from the site to the point of connection with the existing PG&E 21 kV distribution line. If the line is undergrounded, it would be installed using horizontal directional drilling (HDD) at depths that would minimize impacts to the existing orchard tree roots.

Ancillary equipment includes switch/fuse panels, control and protection equipment, communications hardware, and meteorological data equipment.

Control System

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

Agrivoltaics

Agrivoltaics is the practice of including agriculture uses in and around large-scale solar PV farms. It focuses on a dual-use of arable land for solar energy production and plant cultivation. Its intent is to create a symbiotic relationship where both the crops and the solar panels perform more efficiently. It also helps saves water since crop production requires more water than washing PV panels. The low-growing native plants on a solar/pollinator agrivoltaic project hold the topsoil on-site and improve it over the life of the project. Deep root systems can bring minerals and nutrients to the topsoil and over time to vastly improve tilth. Pollinators, especially bees, play a fundamental role in agriculture by servicing pollination-dependent crops and maintaining populations of both wild and cultivated species of plants that are considered useful for purposes other than food.

For this project, the applicant is proposing adding apiary uses. The project would support native pollinators through native reseeding under and between the solar panels while raising honeybees to support agriculture. The bees would be used to pollinate the nearby orchards along with other crops. The apiary operations would involve transporting beehives to the Project site twice a year (once in March/April and once in November/December) to assist with pollination and to further split the colonies to establish new hives and raise queen bees. The area required for temporary apiary operations would be approximately 0.5 acre.

To encourage pollinator habitat and control vegetation growth, sheep grazing would occur underneath and between the modules where and when necessary. The applicant has proposed a 3-foot minimum height above the ground surface at the lowest edge of the PV modules. At the highest point of the solar tracking during the day, the PV modules will be less than 9 feet above the ground surface. When combined with the interrow access/spacing to enable vegetation management, this will be more than sufficient space to allow for grazing in addition the proposed pollinator habitat.

4.4 Project Schedule

Construction of the Project is anticipated to begin no later than the third quarter of 2022 and last approximately 6 months. Construction would begin 6 to 8 months following completion of the CEQA review and receipt of all applicable permits. The PPA requires the facility to be operational by the first quarter of 2023.

4.5 Project Construction

Schedule and Workforce

A PV solar energy-based electricity generating facility is highly modular and as such, is very straightforward to construct. The construction activities for the Project generally fall into three main phases: (1) site preparation; (2) system installation; and (3) facility commissioning. The entire process is estimated to take up to 6 months, with the following breakdown of tasks:

- Mobilization/site preparation (2 weeks)
- Clear and grub/grading/roads (6 weeks)
- Underground electrical installation (16 weeks)
- PV racks and solar panel installation (16 weeks)
- Battery energy storage system construction (7 weeks)
- Construction of the new portion of distribution line (4 weeks)

The on-site construction workforce for the project is expected to peak (overlapping construction activities) at 140 individuals. It is anticipated that the construction workforce would commute to the site each day from local communities. The worker vehicle trips anticipated to be generated from the project assumes 112 employees would commute alone, and 28 employees would carpool (2 per vehicle); for a total of 126 daily round trips, or 252 average daily trips. Additionally, construction activity trips would include several trucks arriving and departing the site each day to deliver materials, including water for dust suppression, supplies, and equipment. It is anticipated that a maximum of 12 truck trips per day would be required, with an average of 8 daily two-way truck trips.

All noise-producing construction-related activities will be limited to the hours of 8:00 a.m. to 6:00 p.m., Monday through Saturday.

Site Preparation

Prior to initial construction mobilization, preconstruction surveys would be performed, and any required sediment and erosion control measures would be implemented in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). A stabilized construction entrance and exit will be installed at the driveway to reduce tracking of sediment onto the adjacent public roadway. Fencing, gates, and communication and security systems would be installed.

Given the relatively flat topology of the site, and adaptability of the support structures, a minimal amount of surface smoothing and grading by wheeled or tracked scrapers and graders would be performed. The rough locations of all foundations, trenches, roads, fences, and equipment would be surveyed and marked. The internal access road would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access per the grading plan drafted by a licensed California Professional Engineer.

Dust Control and Suppression

There will be minimal smoothing of the site, to create access roads within the facility. The other potentially significant ground-disturbing activities will be related to the initial clearing of the site, trenching for underground power and communications cables, and foundation installation. The Project will comply with all standards as applied by the Yolo-Solano Air Quality Management District ("AQMD") to minimize fugitive dust PM_{10} emissions and other construction-related pollutants. Hence, to control dust, the applicant has proposed to incorporate the following measures:

- A water truck(s) will be used for dust control purposes. To minimize wind driven dust from the project site, all clearing, grading, and significant ground disturbing activities will be stopped during periods where the wind speed exceeds 25 miles per hour (averaged over 1 hour). Water will be the primary means of dust control and suppression, but dust palliatives may also be used as needed.
- Active construction sites would be watered at least three times daily to comply with the District rule to reduce particulate matter concentration.
- A soil binding agent would be applied to the Project site, resulting in an additional reduction in particulate matter.
- All vehicles traveling over unpaved, including graveled, areas shall travel at speeds at or below 15 miles per hour. Signs identifying the maximum speed limit shall be placed at all site entrances during construction.

System Installation

Trenching would be performed for placement of underground electrical and communications lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. Most excavation activities would be less than 6 feet deep; however, some excavations, such as those for the installation of electricity collector poles, may reach depths of approximately 8 feet, depending on site-specific soil conditions. In addition, concrete pillar foundations will be required for the battery storage containers, and medium voltage turnkey solution containers will house inverters, transformers, and other electrical equipment. The depth of these pillar foundations will depend on the result of site-specific geo-technical studies. Concrete required for any foundations or equipment pads would be purchased from an off-site supplier and trucked to the project site for placement. The steel beam/tube foundations (posts) for the PV support structures would be driven into the soil using vibratory or hydraulic press-in methods. Once the posts have been installed, the horizontal cross-members and other hardware/equipment associated with the single-axle tracking structural system would be placed and secured. The electronic/electrical equipment would be mounted or installed in-place and electrical output interconnected to PG&E's electrical distribution system. The PV modules would be mechanically attached to the support structure in the correct position for maximum exposure to sunlight and electrically interconnected to the inverters.

Facility Commissioning

Facility commissioning includes final inspections testing, start-up, and certification. Once all the equipment and components have been installed and inspected, all mechanical and electrical connections would be inspected. The facility would be brought on-line in stages starting at low power levels and methodically increasing the capacity until the facility is operating at full power. Testing would occur at every stage to correlate electricity output to weather conditions.

4.6 Operations and Maintenance

The facility would be remotely operated, controlled, and monitored with no requirement for daily on-site employees. It would be monitored through a SCADA system. Local and remote O&M staff would be on-call to respond to any alerts generated by the monitoring systems and would be present on the site periodically to perform maintenance.

A part-time O&M staff of three people would be responsible for performing all routine and emergency operational and maintenance activities. Such activities include inspections, equipment servicing, site and landscape clearing, and periodic washing of the PV modules (up to two times per year) if needed to increase the performance of the panels. The project would require about 1.2 acre-feet (AF) of water per year for routine panel washing. In addition, during the first 3 years of operation, the project is estimated to use up to 3 AF of water annually to irrigate the plant substrate.

Replacement parts and components would be warehoused off-site and deployed as needed. Most scheduled maintenance would occur during daytime hours, but work may be performed at night for safety reasons.

In addition, to encourage pollinator habitat and control vegetation growth, occasional visits will be required to bring and remove sheep used for grazing, and to bring and remove bees for apiary uses.

Site Security

The facility would be accessed directly from State Route 16 (SR 16) with on-site perimeter and center line compacted dirt roads for fire access and facility operations. A 6-foot-tall chain-link security fence would be installed around the perimeter of the site to restrict public access during construction and operations. The Project applicant would comply with the National Electrical Safety Code (NESC) requirements for protective arrangements in electric supply stations when fencing the facility. A remotely monitored security system would be installed to discourage and record any incidents of vandalism and/or trespassing.

Minimal lighting would be used for operations and would be limited to safety and security functions. Motion sensitive, directional security lights would be installed to provide adequate illumination at points of ingress/egress. All lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable County requirements. If additional temporary lighting should be required for nighttime maintenance, portable lighting equipment would be used, and removed from the site at the end of the maintenance.

4.7 Facility Closure/Decommissioning

Decommissioning

Electricity generated by the facility would be sold under the terms of a 20-year PPA with VCE. At the end of the PPA term, the owner of the facility would decommission and remove the generating facility and its components. Upon decommissioning, the site could be restored to agricultural uses or converted to other uses in accordance with applicable land use regulations in effect at that time.

The decommissioning of the Project would involve the removal of above-grade facilities (such as buildings, PV panels, racking, and power poles for the gen-tie lines), buried electrical conduit, and all concrete foundations. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

The BESS would be decommissioned along with the rest of the solar facility. Batteries may be disposed of as hazardous waste, or recycled, depending on available technology. The recycling of the batteries is expected to become increasingly commonplace with the increased use of batteries in consumer goods and electric vehicles. Some batteries may have the capacity at the end of the operating life of the project to be reused.

Decommissioning activities would involve exposure and disturbance of soils; therefore, measures for erosion and sediment control would be implemented in accordance with a separate SWPPP that would be required for decommissioning.

Decommissioning would occur in three phases:

- Phase 1 would involve shutting down the systems and removing hazardous materials and wiring
- Phase 2 would include removing the PV modules, inverters, switching station, and battery storage system
- Phase 3 would include removing site fencing and driveways and the final soils reclamation process would commence

Decommissioning Workforce, Equipment, and Trip Generation

Approximately 140 workers may be on the site at a time for decommissioning activities. Decommissioning would involve the use of heavy equipment similar to that used for construction.

Appropriate hazardous materials control and erosion control measures (including obtaining a National Pollutant Discharge Elimination System [NPDES] permit and implementing a Stormwater Pollution Prevention Plan [SWPPP]) would be used throughout the decommissioning process. It is anticipated that such controls would be substantially similar to those implemented during construction, although the intensity of activities would be much lower. Trips generated by decommissioning include worker vehicle trips, water truck trips, and construction truck trips. Decommissioning would generate approximately 300 average daily worker trips and 30 average daily construction truck trips.

Site Reclamation

The driveway and other areas compacted during original construction or by equipment used for decommissioning would be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Low areas would be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, topsoil would be placed to a depth and density consistent with adjacent properties. Compost would be applied to the topsoil, and the entire site would be tilled to further loosen the soil and blend in the compost to restore the site to pre-project conditions to the extent feasible.

4.8 Zoning

The site is zoned Agricultural Intensive (A-N).

4.9 Surrounding Land Uses and Setting

The Project is located 0.6 miles west of the unincorporated community of Madison and 1.2 miles east of the unincorporated community of Esparto. The Project site is currently farmed with alfalfa and tomatoes. The surrounding parcels to the north of the project support dry field crops and orchards; the parcels to the east and south support orchards, and the parcel to the west supports dry field crops (see Figure 4-3, Surrounding Land Uses).

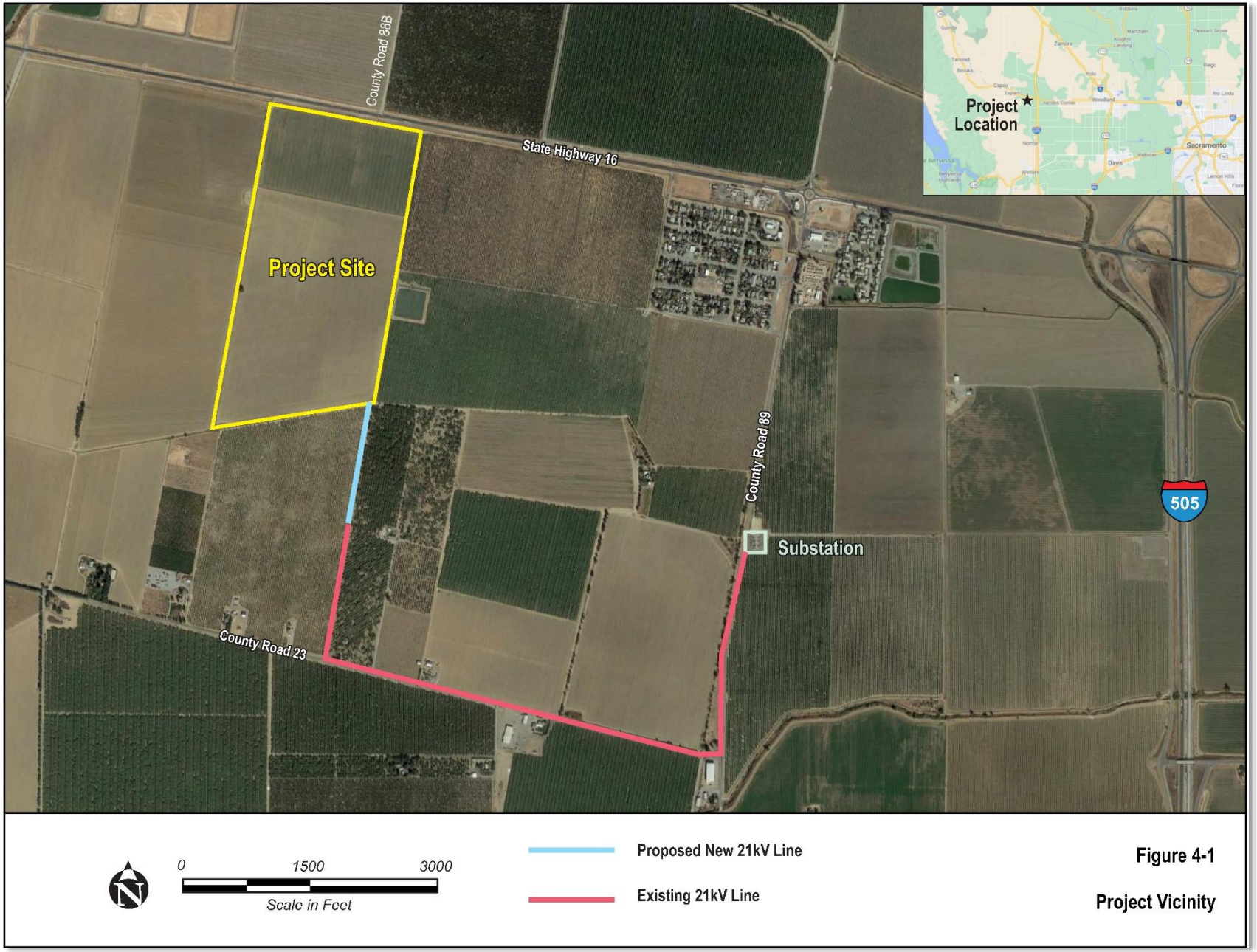


Figure 4-1

Project Vicinity

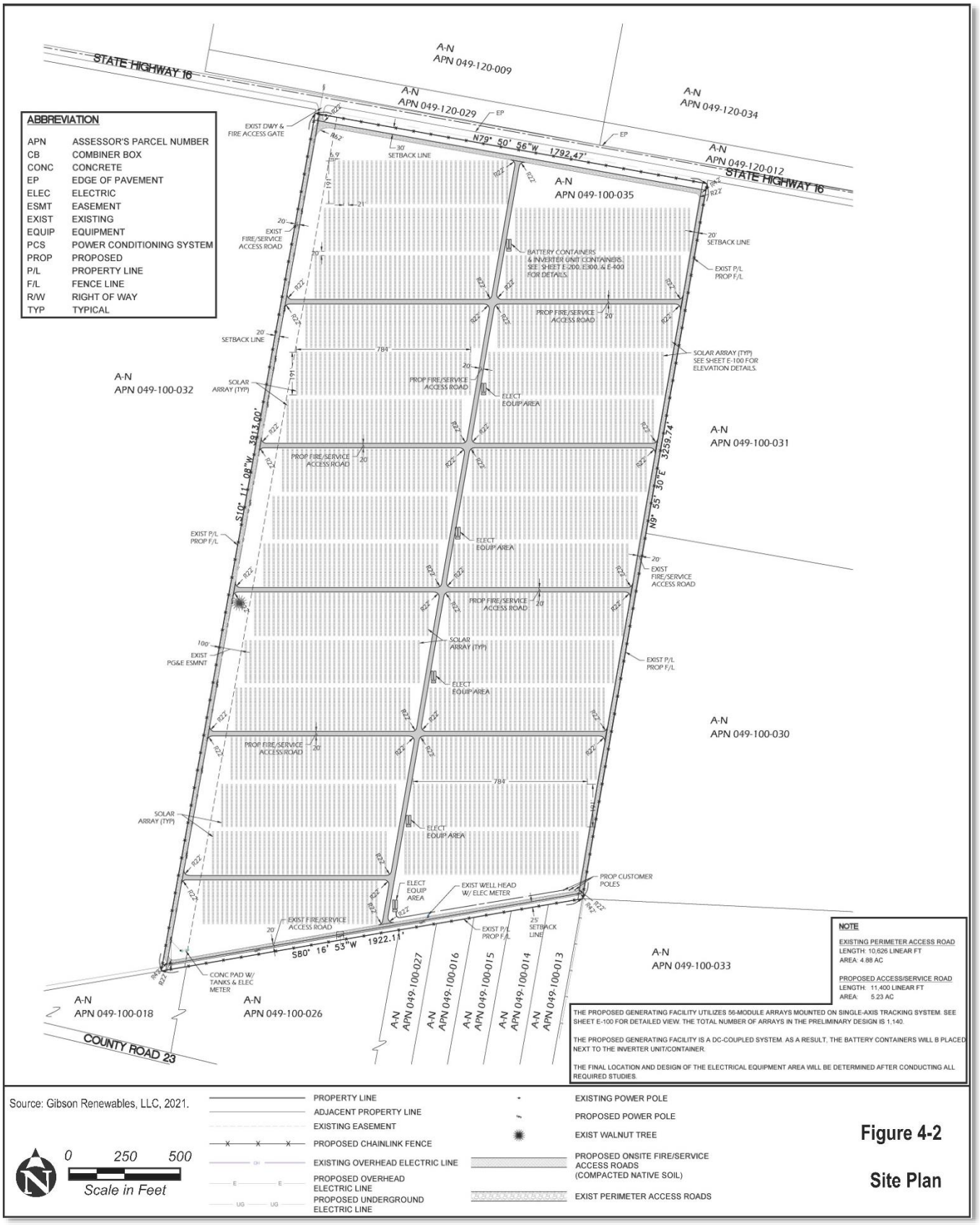


Figure 4-2

Site Plan

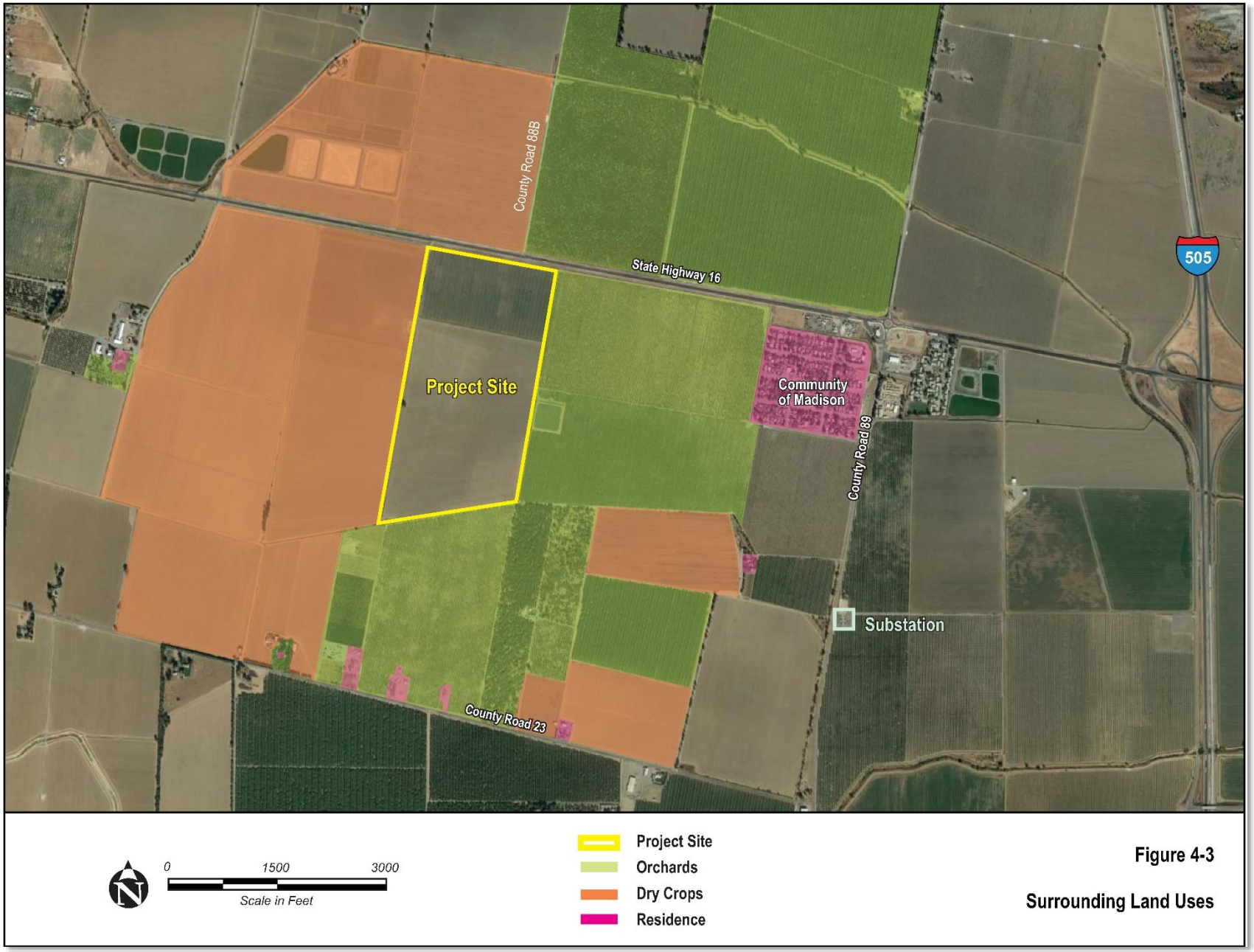


Figure 4-3

Surrounding Land Uses

5. Environmental Setting and Environmental Impacts

5.1 Aesthetics

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.1.1 Setting

Aesthetics, as addressed in the California Environmental Quality Act (CEQA), refers to visual considerations in the physical environment. Aesthetics analysis, or visual resource analysis, is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The Aesthetics section of this IS/MND describes the existing landscape character of the project area, existing views of the project area from various on-the-ground vantage points, the visual characteristics of the proposed Project, and the landscape changes that would be associated with the construction and operation of the Project, as seen from various vantage points.

When viewing the same landscape, people may have different responses to that landscape and any proposed visual changes, based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer's sensitivity to scenic quality and visual changes. Recreationists, hikers, equestrians, tourists, and people driving for pleasure are expected to have high concern for scenery, visual quality, and landscape character. People who are commuting daily through the same landscape generally have a moderate concern for scenery, while people working at agricultural or industrial sites generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances at which it is seen, such as close-up or far away. The visual sensitivity of a landscape also is affected by the travel speed at which a person is viewing the landscape (high speeds on a highway, low speeds on a hiking trail, or stationary at a residence).

Distance zones are delineated as immediate foreground, foreground, middleground, and background. For this analysis, these distances are defined as follows:

- Immediate Foreground (from the viewer to approximately 300 feet away)
- Foreground (approximately 300 feet to 0.5 miles away)
- Middleground (approximately between 0.5 and 4 miles away)
- Background (approximately 4 miles to the horizon)

When a viewer is closer in proximity to a viewed object in the landscape, more detail can be seen and there is greater potential influence of that object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same landscape feature is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middleground, some detail is evident (like the foreground) and landscape elements are seen in context with landforms and vegetation patterns (like the background).

Visual Inventory Methodology

Visual resources of the project area were investigated based on the following criteria: (1) existing visual quality and scenic attributes of the landscape; (2) location of sensitive receptors in the landscape; (3) assumptions about receptors' concern for scenery and sensitivity to changes in the landscape; (4) the magnitude of visual changes in the landscape that would be brought about by implementation, construction, and operation of the Project; and, (5) compliance with State, County and local policies for visual resources.

The visual setting is described in terms of the existing *landscape character and visual quality* of the viewshed. Existing landscape character is an overall visual and cultural impression of landscape attributes—the physical appearance and cultural context of a landscape that gives it an identity and sense of place. Existing landscape character is determined by landforms, vegetation patterns, waterbodies, and cultural features. Visual quality is a judgment of a landscape's attractiveness, as determined by attributes broadly recognized as being valued and preferred by most viewers. Visual quality is expressed as a range of valued landscape attributes, often described in terms such as form, line, color, and texture. Combinations of these factors lead to evaluations of landscape character and visual quality, such as:

- High – a landscape of exceptional quality and beauty, valued for its scenic attributes.
- Moderate – a landscape that is common or average within the landscape character type.
- Low – a landscape that is lacking in scenic features.

The existing landscape setting and its viewers are characterized in terms of their overall visual sensitivity. Visual sensitivity consists of three components: viewer exposure, viewer concern, and visual quality. Viewer exposure affects a landscape's overall visual sensitivity. Landscapes that have very low viewer exposure (based on landscape visibility, the viewing distance, the number of people who view the landscape, or the duration of time that the landscape can be viewed) would tend to be less sensitive to overall visual change in the context of human experience of visual impacts.

Evaluations of existing landscape character and visual quality, combined with ratings of overall visual sensitivity, establishes the visual inventory methodology.

On-the-ground viewpoints were analyzed for their potential to display worst-case visual effects of the Project to the scenic and aesthetic landscape. From all these viewpoints, one or more key observation points (KOPs) generally are identified to represent the most critical viewing locations and the viewer groups likely to be affected by a project. Assessments of visual impacts are determined from each KOP. In the impact analysis, overall visual sensitivity is considered in combination with the level of visual change introduced by a project, as seen from a KOP, to arrive at preliminary findings of potential project impact significance. In this analysis, impacts to foreseeable future viewers such as residents of new and currently un-built subdivisions, were also analyzed to support the evaluation of cumulative impacts.

For this project, visually sensitive areas that are publicly accessible are those primarily along State Route (SR) 16. Because of the flat topography and distance from other public roadways, there is almost no visibility from other roadways, or other viewing areas. From numerous on-the-ground viewpoints along SR 16, one location was selected as a Key Observation Point (KOP) for detailed analysis of the Project addressed in the discussion section.

Existing Landscape Setting and Viewer Characteristics

This section discusses the existing visual character of the region, existing visual quality in the Project area; viewer concern, and viewer exposure to the Proposed Project, leading to a rating of overall visual sensitivity. Also discussed are the existing sources of light and glare within the Project area.

Regional Context. The Project site consists of one 147-acre parcel located within the A-N (Agricultural-Intensive) Zone. The area surrounding the Project site is also agricultural land. The region is almost entirely agricultural in land use and includes vast stretches of orchards and row crop fields. The landscape within this subarea is predominantly flat, with expansive views of orchards and cultivated fields uninterrupted by natural or constructed landforms or significant development. Adding to the visual character of this subarea are intermittent farm implement storage and agricultural industrial buildings, including barns, processing facilities, and storage areas, which give the Valley Floor subarea a truly rural character. The main deviation from the rural context is the community of Madison, which is located east of the Project site. This small residential community, which occupies approximately 1,000 acres, has just over 130 homes and a population of just over 500 persons.

Project Viewshed and Key Observation Points. The Project site is currently partially farmed with rows of low-level crops visible along SR 16. The existing landscape of the Project site and surrounding area is considered to have moderate-to-low visual quality and consists of a blend of used and unused agricultural land. Within foreground viewshed areas of the Project site, the topography is flat (Photo 1). Public KOPs would be along SR 16. Because of Yolo County's rural character, night lighting and glare mostly occur within and around the developed communities and cities. Individual areas supporting agriculture and other industries also produce limited amounts of nocturnal lighting and glare on an intermittent basis when evening activities require additional lighting. However, the main source of light is from the adjacent community of Madison.

Photo 1 – Northwest corner of the Project site from State Route 16 – looking due southeast
(Source: Gibson Renewables, LLC, 2021)

Regulatory Background

Yolo County does not currently have any regulations applicable to visual and scenic resources. Design review is performed on a project-by-project basis by the County during the application review for a building permit.

The following policies are presented in the Yolo County 2030 General Plan, Land Use and Community Character Element (2009):

Policy CC-1.1 Encourage private landowners of both residential and commercial properties to maintain their property in a way that contributes to the attractive appearance of Yolo County, while recognizing that many of the land uses in the County, including agriculture and light industry, require a variety of on-site structures, equipment, machinery and vehicles in order to operate effectively.

Policy CC-1.2 Preserve and enhance the rural landscape as an important scenic feature of the County.

Policy CC-1.3 Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.

Policy CC-1.8 Screen visually obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas, along highways, freeways, roads, and trails.

5.1.2 Environmental Impacts and Mitigation Measures

Visual Impact Assessment Methodology

This visual analysis used the Visual Sensitivity/Visual Change (VS/VC) methodology to assess the visual effects of the Project on existing landscapes. The VS/VC methodology includes a characterization of the visual sensitivity of existing landscapes, the characteristics of existing visual changes occurring and apparent in the landscape, and the characteristics of the Project.

Following professionally accepted practice in visual analysis, visual sensitivity consists of three components: visual quality, viewer concern, and viewer exposure. The description of visual quality notes the existing built structures and natural landscape features that contribute to overall visual quality. Viewer concern can be described as the personal expectations for the landscape that are held by the viewing public. Viewer concern is often reflected in public policy documents that identify landscapes of special concern or roadways with special scenic status, e.g., scenic highways. Viewer exposure also affects a landscape's overall visual sensitivity. Landscapes that have very low viewer exposure, based on landscape visibility, viewing distance, number of people who view the landscape, or duration of time that the landscape can be viewed, will tend to be less sensitive to overall visual change in the context of human experience of visual impacts. Landscapes with higher viewer exposure are more sensitive to overall visual changes. Overall visual sensitivity is rated on a scale of Low to Moderate to High.

Project-induced visual change could result from aboveground facilities, vegetation removal, landform modification, component size or scale relative to existing landscape characteristics, and the placement of project components relative to developed features. The experience of visual change can also be affected by the degree of available screening by vegetation, landforms, and/or structures; distance from the observers; atmospheric conditions; and angle of view. Visual change describes the degree of actual visible change expected as a result of the project. The fundamental elements of visual change include visual contrast, visual dominance, and scenic view obstruction. Visual contrast refers to visual discrepancies of form, line, color, or texture of the project against the existing landscape. Visual dominance refers to the degree to which this contrast would demand the attention of casual viewers. Scenic view obstruction refers to the degree to which the project would block or intrude upon scenic view corridors, particularly those identified in public policies. Overall visual change is rated on a scale of Low to Moderate to High.

In addition, the project is evaluated for conformance with applicable local plans and policies. Adopted expressions of local public policy pertaining to visual resources are given great weight in determining both visual quality and viewer concern.

The determination of which aesthetic changes cross a threshold of "substantial adverse effect" or degradation is based upon the criteria described in the methodology summary (above) and in Table 5.1-1, Visual Impact Significance Criteria. This table is used primarily as a consistency check. Determinations of visual sensitivity and visual change were based primarily on the analyst's experience and site-specific circumstances.

Implicit in this rating methodology is the acknowledgment that for a visual impact to be considered significant two conditions generally exist: (1) the existing landscape is of reasonably high quality and is relatively valued by viewers; and (2) the perceived incompatibility of one or more elements or characteristics of the project tends toward the high extreme, leading to a substantial reduction in visual quality.

Table 5.1-1. Visual Impact Significance Criteria

Visual Sensitivity	Visual Change				
	Low	Low to Moderate	Moderate	Moderate to High	High
Low	No Impact[1]	No Impact	Less Than Significant[2]	Less Than Significant	Less Than Significant
Low to Moderate	No Impact	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant with Mitigation Incorporated[3]
Moderate	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant with Mitigation Incorporated	Less Than Significant with Mitigation Incorporated
Moderate to High	Less Than Significant	Less Than Significant	Less Than Significant with Mitigation Incorporated	Less Than Significant with Mitigation Incorporated	Potentially Significant Impact[4]
High	Less Than Significant	Less Than Significant with Mitigation Incorporated	Less Than Significant with Mitigation Incorporated	Potentially Significant Impact[4]	Potentially Significant Impact

1 - No Impact – Impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
2 - Less Than Significant – Impacts are perceived as negative but do not exceed environmental thresholds.
3 - Less Than Significant with Mitigation Incorporated – Impacts are perceived as negative and may exceed environmental thresholds depending on project and site-specific circumstances but are Less Than Significant with mitigation incorporated.
4 - Potentially Significant Impact – Impacts with feasible mitigation may be reduced to levels that are not significant or avoided all together. Without mitigation, significant impacts would exceed environmental thresholds.

Aesthetics Impacts

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

NO IMPACT. For purposes of determining significance under CEQA, a "scenic vista" is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. The Project area is considered to have moderate-to-low visual quality. Public views of the site are primarily only available from SR 16 and are of flat agricultural lands and uses. Due to the Project site and adjacent lands being developed with agricultural uses, the proposed Project site is not considered a scenic vista because it does not provide sustained high-value landscape for the benefit of the public. No impacts to scenic vistas would occur.

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

NO IMPACT. The Project site does not contain any buildings (historic or otherwise) nor does it contain any rock outcroppings. Additionally, the site contains only one tree (about 2,250 feet south of SR 16) and would not require the removal or trimming of any adjacent trees. No impacts to such scenic resources would occur.

Yolo County does not have any designated State Scenic Highways, though SR 128 was recently added to the eligibility list for official designation as a state Scenic Highway (Caltrans, 2021). However, the eligible portion of SR 128 is located over 15 miles south the Project site. Therefore, views of the Project site are unavailable from this eligible scenic highway due to distance and flat topography. Yolo County General Plan Policy CC-1.13 designates five local scenic roadways. The following identifies the closest locally designated scenic roadway to the Project site:

- State Route 16 (Colusa County line to Capay)

The easternmost segment of this route (terminus at the community of Capay) is located over 4 miles west of the Project site. At this location, views of the Project site are unavailable due to distance and flat topography. Therefore, the Proposed Project would have no impact on scenic roads or highways.

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

LESS THAN SIGNIFICANT IMPACT. The Project site is located in an agricultural area and is bounded by SR 16, existing agricultural lands, and rural dirt roads accessing adjacent farms and residences. The Project would primarily be visible to public viewers along SR 16. Other views from adjacent agricultural lands are considered private views. Therefore, the Project would have low public visibility from the surrounding area.

Photos 2 and 3 present a visual simulation of the Project from SR 16 looking due east.

Based on the above existing and simulated (with Project) views from SR 16—which is considered a public viewshed—while the proposed solar installation would cause an increase in the prominence of non-natural features and industrial character within foreground and middleground views, the visual contrast compared to existing conditions is not considered to substantially alter the existing landscape or view quality. Due to the relatively low height of each row of solar modules, the Project blends with the horizon line at this KOP. The primary source of visual contrast occurs from the solar module frames, which clashes with the lighter vegetation and earth colors in the foreground and surroundings. This contrast would be reduced during winter months as vegetation darkens. Visual contrast would also be reduced from intervening orchards to the east (for viewers travelling westbound on SR 16) and the continued presence of taller natural grasses in the foreground. From this KOP, the solar module color scheme, white and dark blue, lends itself to blending with the darker horizon line and sky.

From this KOP and along SR 16 near the Project site, the continued presence of taller natural grasses, transmission line infrastructure, and the roadway in the foreground remain the focal point of foreground and middleground views along with large unobstructed sky views due to the flat topography. As discussed, the view sensitivity of the Project site is considered low-to-moderate. Additionally, visual change from the Project along SR 16 is considered low-to-moderate and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Therefore, based on the methodology provided in Table 5.1-1, potential impacts of the solar facility are considered less than significant.

Photo 2 – EXISTING VIEW: State Route 16 – looking due east at the Project site.
(Source: Gibson Renewables, LLC, 2021)

Photo 3 – SIMULATED VIEW WITH PROJECT: State Route 16 – looking due east at the Project site.
(Source: Gibson Renewables, LLC, 2021)

To connect the project to the PG&E distribution system, three power poles will be installed in the southeastern corner of the site (the point of interconnection). From these poles, a generation tie line (gen-tie line) would be installed running south, along the east side of the parcel toward County Road (CR) 23 for approximately 2,400 feet where it would be connected to an existing 21 kV distribution system owned by PG&E (see Figure 4-1, Vicinity Map). At this point, it has not been determined whether the gen-tie line will be installed aboveground, or underground. For the purposes of this visual analysis, it is assumed that the gen-tie line will be aboveground, because that would pose the greatest potential aesthetic impact. As shown in Figure 4-1, an existing 21 kV line exists within view of the nearest sensitive receptors, which are residential homes located along County Road (CR) 23. From these nearest receptors, the proposed new 21 kV poles and conductor wire would begin approximately 1,500 feet. At this distance and along the adjacent roadways (public viewpoints), the new poles would blend visually with the existing 21 kV line as they would be of similar height and materials. Due to the relatively low height of these poles, considering the distance from the proposed extension and the nearest receptors and public roads, and given that mature vegetation would exist between the proposed extension and these viewpoints, it is possible that the proposed new 21 kV extension would not be visible from most public viewpoints. Where it is visible, these features would not be prominent. Due to the existing 21 kV line existing along CR 23, CR 89, and within the existing farmland leading to the Project site, extending the existing line north into the Project site would not create new visual contrast nor would it result in adverse impacts to the existing visual character or quality of the public views of the site and its surroundings. For these reasons impacts associated with the extension of the 21 kV distribution line are considered to be less than significant.

Additionally, applying the principles of agrivoltaics, a multi-use plan for the Project site has been proposed to support pollinators, grow native plants, host apiary at the site, and carry out other agrivoltaic uses. The multi-use plan will allow for vegetation to be grown within the Project site in conjunction with the solar array. While the Project itself is not found to result in impacts to the existing visual character or quality of the public views of the site and its surroundings, the vegetation from the multi-use plan would further reduce and serve to soften the visual contrast of the Project with the surrounding agricultural lands.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

LESS THAN SIGNIFICANT IMPACT – CONSTRUCTION AND DECOMMISSIONING. Construction and decommissioning activities will be performed during daylight hours. Should nighttime lighting be needed, temporary construction lighting will be provided. All lighting will be removed at the conclusion of these activities.

LESS THAN SIGNIFICANT IMPACT – OPERATIONS. Minimal lighting will be used for operations and would be limited to safety and security functions. Motion sensitive, directional security lights would be installed to provide adequate illumination at points of ingress/egress. All lighting will be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable County requirements. If additional lighting is required for nighttime maintenance, portable lighting equipment will be used.

The primary viewers with potential to be affected by light or glare would be adjacent residences. The nearest sensitive residential receptors to the project site are five residences (or more, since some areas appear to have two residences), located on CR 23 south of the Project. The distances from the closest residence at each location to the nearest project boundary ranges from about 2,000 feet to 3,200 feet. To the east of the project is the residential community of Madison, on SR 16, located 3,000 feet east of the nearest

project boundary. To the west of the Project is a rural residence on Oakdale Ranch Lane located about 3,800 feet west of the nearest project boundary.

Because the proposed lighting would be shielded and directed downwards, given the distances of the nearest residences to the Project site boundary, and considering intervening orchard and other agricultural screening that exists within adjacent agricultural lands, the Project is not anticipated to result in light trespass to these residential properties. For these reasons, impacts from light and glare would be less than significant.

Aesthetics Impact Conclusions

The Project would have minimal impacts to scenic vistas or scenic resources. While the Project would increase the industrial character of the site, it would result in less than significant impacts to the existing visual character or quality of the public views of the site and its surroundings. Additionally, night lighting is not found to have the potential to trespass onto adjacent residences.

5.2 Agriculture and Forestry Resources

AGRICULTURE AND FORESTRY RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.2.1 Setting

The proposed Project would disturb an approximately 147-acre agricultural parcel owned by AWR Land Partnership, LP. The Project site is located in an area dominated by farming immediately south of State Route 16, approximately 0.6 miles west of the unincorporated community of Madison, and 1.2 miles east of the unincorporated town of Esparto in Yolo County. The site is north of County Road 23 and west of County Road 89. The land is currently being used for irrigated crop production (i.e., tomatoes and alfalfa). Surrounding uses include orchards to the north, and dry-farmed field crops to the north and west. The closest residence is located on County Road 23 approximately 2,000 feet south of the site. There is also a residence to the west, which is approximately 0.5 miles away, and another to the northwest approximately 0.7 miles away.

The California Department of Conservation (DOC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 to assess the location, quantity, and quality of agricultural lands and conversion of these lands to other uses. Every even-numbered year, FMMP issues a Farmland Conversion Report. FMMP data are used in elements of some county and city general plans, in regional studies on agricultural land conversion, and in environmental documents as a way of assessing project-specific impacts on Prime Farmland.

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service), classifies notable agricultural lands as follows:

- ***Prime Farmland:*** *Land that has the best combination of physical and chemical properties for the production of crops*
- ***Farmland of Statewide Importance:*** *Similar to Prime Farmland, but with minor shortcomings (e.g., steeper slopes, inability to hold water)*
- ***Unique Farmland:*** *Land of lesser quality soils, but recently used for the production of specific high economic value crops. Land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California*
- ***Farmland of Local Importance:*** *Defined for Yolo County as farmland, presently cultivated or not, having soils which meet the criteria for Prime or Statewide, except that the land is not presently irrigated, as well as other nonirrigated farmland.*
- ***Grazing Land:*** *Land on which the existing vegetation is suited to the grazing of livestock.*
- ***Urban and Built-Up Land:*** *Land occupied by structures with a building density of at least one unit per 1.5 acres. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures and other developed purposes.*
- ***Other Land:*** *Land not included in any other mapping category, for example, low density rural developments; brush, timber, wetland and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; water bodies smaller than 40 acres; and vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres in area.*
- ***Water:*** *Perennial water bodies with an area of at least 40 acres.*

The proposed developed area would be located entirely on designated Prime Farmland per the California Department of Conservation (DOC, 2019). This parcel of land is enrolled under a Williamson Act Contract (No. 71-206), and the Project site is zoned by Yolo County as Agricultural Intensive (A-N) (Yolo County, 2019).

Regulatory Background

State Requirements

This section addresses the requirements of California Government Code Section 65560(b) related to agriculture and rangeland: "(b) 'Amount of land converted from agricultural use' means those lands that were permanently converted or committed to urban or other nonagricultural uses and were shown as agricultural land on Important Farmland Series maps maintained by the department and in the most recent biennial report." In addition, it addresses Government Code Section 65560(h)(2), which reads: "(2) Open space used for the managed production of resources, including, but not limited to, forest lands, rangeland, agricultural lands, and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers, and streams that are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

Local Requirements

The following policies are presented in the Yolo County General Plan, Agriculture and Economic Development Element (Yolo County, 2009a).

Goal AG-1 Preserve and defend agriculture and agricultural lands as fundamental to the identity of Yolo County. This goal focuses on the County's key agricultural sectors, including retaining existing growers and processors of crops, as well as emerging crops and processing, support of small and organic growers, and transfer of new technologies.

Policy AG-1.5 Strongly discourage the conversion of agricultural land for other uses. This policy requires that no lands shall be considered for redesignation from Agricultural or Open Space to another land use designation unless all of three findings are made involving a public need or net community benefit; no feasible alternative locations for the proposed project; and no significant impact on existing or potential agricultural activities.

Policy AG-1.6 Continue to mitigate at a ratio of no less than 1:1 the conversion of farmland and/or the conversion of land designated or zoned for agriculture, to other uses. This policy is implemented using the Agricultural Conservation and Mitigation Program, which is described below.

Policy AG-1.14 Preserve agricultural lands using a variety of programs, including the Williamson Act, Farmland Preservation Zones (implemented through the Williamson Act), conservation easements, an Agricultural Lands Conversion Ordinance, the Agricultural Conservation and Mitigation Program, and the Right-to-Farm Ordinance

The following goal and policy are presented in the Yolo County General Plan, Land Use and Community Character Element (Yolo County, 2009b).

Goal LU-2 Preserve farmland and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy. This goal is implemented through the programs noted in AG-1.14 above.

Policy LU-2.4 Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city spheres of influence. This policy is implemented through adherence to urban growth boundaries designated by Yolo County's incorporated cities, and in conjunction with LAFCO, the cities' spheres of influence.

Yolo County Solar Energy Systems Ordinances: These ordinances specify development standards for small, medium, large, and very large solar energy systems (Yolo County Code Sections 8-2.1104 and 8-2.1105).

Williamson Act

The Williamson Act, also known as the California Land Conservation Act, is a staple of Yolo County's agricultural preservation program. The main purposes of the Yolo County Williamson Act program are to: preserve farmland to ensure a secure food supply for the state, nation, and future generations; maintain agriculture's contribution to local and state economic health; provide a tax incentive to farmers and ranchers who keep their land in agricultural use through long-term contracts; promote orderly city growth and discourage leapfrog development and the premature loss of farmland; and preserve open space for its scenic, social, aesthetic and wildlife values (Yolo County, 2017).

Yolo County Agricultural Conservation and Mitigation Program

Yolo County established its Agricultural Conservation and Mitigation Program in 2014, by adding a new section to the County Zoning Code (Yolo County Code Section 8-2.404; Yolo County, 2015). This section implements the agricultural land conservation policies contained in the Yolo County General Plan with a program designed to permanently protect agricultural land located within the unincorporated area. Mitigation shall be required for conversion or change from agricultural use to a predominantly non-agricultural use prior to, or concurrent with, approval of a zone change from agricultural to urban zoning, permit, or other discretionary or ministerial approval by the County.

With some exceptions regarding projects proposed near urban area boundaries, for projects that convert prime farmland, a minimum of 3 acres of agricultural land shall be preserved for each acre of agricultural land changed to a predominantly non-agricultural use or zoning classification (3:1 ratio). For projects that convert non-prime farmland, a minimum of 2 acres of agricultural land shall be preserved for each acre of land changed to a predominantly non-agricultural use or zoning classification (2:1) ratio. Projects that convert a mix of prime and non-prime lands are required to use a blended mitigation ratio which reflects the percentage mix of converted prime and non-prime lands within project site boundaries (Yolo County, 2021).

5.2.2 Environmental Impacts and Mitigation Measures

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as Shown on the Maps Prepared Pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to Non-agricultural use?

POTENTIALLY SIGNIFICANT IMPACT. The proposed Gibson Solar Farm Project would occupy an approximately 147-acre parcel. Currently, the entire parcel is active farmland. The primary soil type is Capay silty clay (Ca), with small amounts classified as Willows, Clear Lake, Marvin, and Meyers soils (UC Davis and NRCS, 2021). Ca and the other soils are classified as Prime Farmland, Class I and II, if irrigated (DOC, 2016). The developed area would extend across designated Prime Farmland pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency (DOC, 2019). The proposed Project would convert approximately 147 acres of Prime Farmland for a very large solar energy generation facility. The Yolo County Zoning Code permits this conversion with mitigation upon approval of a Use Permit (Yolo County, 2014).

A very large-sized solar energy system, as defined by the County's Solar Energy Systems Ordinance (Yolo County Code Section 8-2.1105(b); Yolo County, 2021), "shall mean a utility-scale solar energy conversion system consisting of many ground–mounted solar arrays in rows, and associated control or conversion electronics, occupying more than 30 acres and no more than 120 acres of land, and that will be used to produce utility power to off-site customers." Such facilities are permitted in the Agricultural Intensive (A-N) Zones, such as the Project site, with the issuance of a major use permit.

The Solar Energy Systems Ordinance requires very large-sized facilities to mitigate for the permanent loss of agricultural land in accordance with the County's Agricultural Conservation and Mitigation Program (Yolo County Code of Ordinances Section 8-2.404), which has established a 3:1 mitigation requirement for conversion of Prime Farmland, which can be adjusted to 1:1 if the easements are placed on parcels partly or entirely within a qualifying priority conservation area (0.25 miles of the sphere of influence of a city or Esparto's Urban Growth Boundary), or 2:1 if the easements are placed in the designated areas between Davis and Woodland.

The project would convert Prime Farmland to a non-agricultural use resulting in significant impacts. Therefore, this impact and feasible mitigation measures will be addressed further in an Environmental Impact Report.

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

POTENTIALLY SIGNIFICANT IMPACT. The project site is zoned Agricultural Intensive (A-N), which permits the siting of large solar projects such as the proposed Project, subject to approval of a Use Permit by the Board of Supervisors upon a recommendation by the Planning Commission.

The project site is also subject to a Williamson Act contract. The minimum acreage requirement for individual parcels to enter into Williamson Act contracts, as stated in Section 51222 of the California Government Code, is 10 acres. However, in Yolo County, the minimum acreage requirement shall be no less than 40 gross acres where the soils are capable of cultivation and are irrigated (prime agricultural land) (Yolo County, 2017). In addition, State CEQA Guidelines, Section 15206 regards the cancellation of 100 acres or more of land from Williamson Act open space contracts to be of statewide, regional, or areawide significance.

Yolo County's Williamson Act Guidelines address compatibility with proposed projects requiring a County Use Permit on Williamson Act Contracted lands. The proposed Project site is subject to a Williamson Act Contract, which was entered into on February 1, 1971. The contract is automatically renewed each year until a non-renewal or cancellation notice is submitted to the County.

Yolo County's Williamson Act Program has the following compatibility criteria, which mirror the Williamson Act's principles of compatibility found in Government Code section 51238.1.

> *(1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.*
>
> *(2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.*
>
> *(3) The use will not result in the result in the significant removal of adjacent contracted land from agricultural or open space use.*
> (Yolo County, 2017).

The proposed project presents a potential conflict with the Williamson Act contract if it cannot meet the compatibility criteria, and could therefore result in a potentially significant impact. This impact will be further studied in an Environmental Impact Report.

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))?

NO IMPACT. As stated previously, the Gibson Solar Farm Project site is zoned A-N (Agricultural-Intensive). None of the proposed Project activities would occur on land zoned as forest, timberland, or timberland

production. The construction, operations, and maintenance of the facility would not conflict with existing zoning of forest, timberland, or timberland production.

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

NO IMPACT. See response to part c., above.

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?

NO IMPACT. As identified previously in part a., the Project site is designated as Prime Farmland. The site is actively farmed for tomato and alfalfa crops, which would be removed and replaced by solar photovoltaic panels, a battery energy storage system (BESS), and small areas for apiary use. The proposed Project would not result in other changes to the existing environment, and it would not result in other conversion of farmland.

Agriculture and Forestry Resources Impact Conclusions

Impacts to agricultural resources will be further studied in an Environmental Impact Report.

5.3 Air Quality

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.3.1 Setting

Criteria Air Pollutants. The United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and the local air districts classify an area as attainment, unclassified, or nonattainment depending on whether the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The California and National Ambient Air Quality Standards (CAAQS and NAAQS) relevant to the proposed Project are shown in Table 5.3-1.

Table 5.3-1. California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.070 ppm
Respirable Particulate Matter (PM_{10})	24-hour Annual Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —
Fine Particulate Matter ($PM_{2.5}$)	24-hour Annual Mean	— 12 µg/m^3	35 µg/m^3 15 µg/m^3
Carbon Monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9.0 ppm
Nitrogen Dioxide (NO_2)	1-hour Annual Mean	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm
Sulfur Dioxide (SO_2)	1-hour 24-hour Annual Mean	0.25 ppm 0.04 ppm —	0.075 ppm 0.14 ppm 0.03 ppm

Notes: ppm=parts per million; µg/m^3= micrograms per cubic meter; "—" =no standard
Source: CARB, 2016. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf.

There are additional state and federal standards for lead, and state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles; however, none of these are directly related to the emissions from the proposed Project's construction and operation.

Attainment Status and Air Quality Plans. The USEPA, CARB, and the local air district classify an area as attainment, unclassified, or nonattainment. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air

quality standards, respectively. The proposed Project would be located within Yolo County, in the Sacramento Valley Air Basin, under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD).

Table 5.3-2 summarizes attainment status for the relevant criteria pollutants in the Project area with both the federal and state standards.

As Table 5.3-2 shows, the proposed Project area is currently nonattainment of the state ozone and PM10 standards and the federal ozone and PM2.5 standards, and attainment or unclassified for all other state and federal standards.

Table 5.3-2. Attainment Status for Yolo County

Pollutant	State Designation	Federal Designation
Ozone	Nonattainment	Nonattainment
PM10	Nonattainment	Unclassified
PM2.5	Unclassified	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Source: YSAQMD, 2021.

Regulatory Background

Sources of air emissions in the Yolo County portion of the Sacramento Valley Air Basin are regulated by the USEPA, CARB, and YSAQMD. The relevant air quality regulations are under the authority of CARB and YSAQMD. The relevant programs and regulations under each of these two regulatory agencies are discussed below.

State

California Diesel Risk Reduction Plan. CARB has adopted several regulations that are meant to reduce the health risk associated with on- and off-road and stationary diesel engine operation. This plan recommends many control measures with the goal of an 85 percent reduction in diesel particulate matter (DPM) emissions by 2020. The regulations noted below, which may also serve to significantly reduce other pollutant emissions, are all part of this risk reduction plan.

Emission Standards for On-road and Off-road Diesel Engines. CARB has established emission standards for new on-road and off-road diesel engines. These regulations have model year-based emissions standards for NOx, hydrocarbons, CO, and particulate matter (PM).

In-use Off-road Vehicle Regulation. The State has also enacted a regulation for the reduction of DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for PM and NOx emissions from owners of fleets of diesel-fueled off-road vehicles and applies to off-road equipment fleets of three specific sizes where the target emission rates are reduced over time. Specific regulation requirements include:

- Limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to the CARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled;
- Restricts adding older vehicles into fleets starting on January 1, 2014; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits).

The construction contractor(s) who complete the construction activities for this Project would have to comply with the requirements of this regulation.

Heavy Duty Diesel Truck Idling Regulation. This CARB rule became effective February 1, 2005, and prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time, unless they are queuing, and provided the queue is located more than 100 feet from any homes or schools.

Statewide Portable Equipment Registration Program (PERP). PERP establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts, if the equipment is located at a single location for no more than 12 months. There may be construction equipment that would be required to be PERP registered, such as portable generators, but there are no known operating emission sources that would be subject to this regulation.

Local

Yolo-Solano Air Quality Management District Rules and Regulations

The following YSAQMD rules and regulations would apply to the proposed Project:

- Rule 2.3 Ringelmann Chart
- Rule 2.5 Nuisance
- Rule 2.14 Architectural Coatings

These rules apply during construction and operation. Rule 2.3 would specifically apply to fugitive dust emissions during construction and operation. Rule 2.5 would apply to construction operation odors and fugitive dust. Rule 2.14 would apply to the paints and other architectural coatings applied during construction and for facility upkeep during operation. The Project applicant has not identified any stationary sources that would require YSAQMD permitting.

YSAQMD Handbook for Assessing and Mitigating Air Quality Impacts

The YSAQMD recommends that CEQA lead agencies use threshold levels in evaluating the significance of criteria air pollutant emissions from project-related mobile and area sources in the Handbook for Assessing and Mitigating Air Quality Impacts (YSAQMD, 2007). The guidelines identify quantitative and qualitative long-term significance thresholds for use in evaluating the significance of criteria air pollutant emissions from project-related mobile and area sources.

The air quality thresholds of significance include:

- Reactive organic gases (ROG): 10 tons per year
- Oxides of nitrogen (NOx): 10 tons per year
- Particulate matter (PM10): 80 pounds per day
- Carbon monoxide (CO): Violation of State ambient air quality standard
- Cancer health risk: 10 in a million at maximally exposed individual (MEI)
- Chronic or acute health risk: hazard index (HI) equal or greater than 1

The guidelines include recommendations for construction fugitive dust and construction equipment exhaust mitigation strategies, where needed. Common measures for controlling construction dust include watering, chemical stabilization of soils or stockpiles, and reducing surface wind speeds with windbreaks. The guidelines identify feasible measures for controlling dust and list the types of sources of emissions subject to controls (YSAQMD, 2007). The Project would implement these feasible measures as needed to comply with YSAQMD Rule 2.3 and Rule 2.5.

The Project would not be a major transportation project or otherwise have CO emissions sources that would be substantial enough to cause a violation of the ambient air quality standard for CO. Therefore, the Project has no potential to exceed the CO threshold of significance.

Fugitive Dust Control Measures

The applicant has indicated, as part of its project description (see Section 4), that it will implement the following fugitive dust control measures to minimize the potential for air quality impacts during construction so that the Project will minimize fugitive dust PM10 emissions and other construction-related pollutants and comply with all standards, as applied by the YSAQMD.

- A water truck(s) will be used for dust control purposes. To minimize wind driven dust from the project site, all clearing, grading, and significant ground disturbing activities will be stopped during periods where the wind speed exceeds 25 miles per hour (averaged over 1 hour). Water will be the primary means of dust control and suppression, but dust palliatives may also be used as needed.
- Active construction sites would be watered at least three times daily to comply with the District rule to reduce particulate matter concentration.
- A soil binding agent would be applied to the Project site, resulting in an additional reduction in particulate matter.
- All vehicles traveling over unpaved, including graveled, areas shall travel at speeds at or below 15 miles per hour. Signs identifying the maximum speed limit shall be placed at all site entrances during construction.

5.3.2 Environmental Impacts and Mitigation Measures

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

DURING CONSTRUCTION AND DECOMMISSIONING, LESS THAN SIGNIFICANT IMPACT. The Project would not substantially conflict with or obstruct implementation of the YSAQMD Air Quality Attainment Plan (1992), the Sacramento Area Regional Ozone Attainment Plan (1994), or subsequent updates to these plans for attaining and maintaining ozone ambient air quality standards. Similarly, Project activities would not substantially conflict with or obstruct implementation of strategies to meet PM10 or PM2.5 standards, or the goals and objectives of the County's General Plan. Both construction and decommissioning would be short-term activities that would not affect long-term projections for air quality attainment. All activities related to the Project's construction and decommissioning emissions would occur in compliance with all applicable YSAQMD rules and regulations, and thus would not conflict with or obstruct implementation of any air quality management plan.

DURING OPERATION, LESS THAN SIGNIFICANT IMPACT. Project-related on-site operation and maintenance (O&M) activities would contribute a minor quantity of emissions due to site security and other upkeep activities that would occur in compliance with all applicable YSAQMD rules and regulations. No on-site employees would be needed to remotely operate the solar facility. The proposed Project would increase the supply of renewable energy, which would contribute to the transition from conventional and polluting fossil-fueled energy resources for power generation. Therefore, the Project's operation would not conflict with or obstruct implementation of any air quality management plan, and the impact under this criterion would be less than significant.

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?

DURING CONSTRUCTION/DECOMMISSIONING, LESS THAN SIGNIFICANT IMPACT. The proposed Project would generate temporary emissions during construction and decommissioning. Since emissions from decommissioning are expected to be less than from construction, this section focuses on construction emissions. The uncontrolled construction emissions estimate assumes that construction would comply with all applicable YSAQMD regulations and rules pertaining to fugitive dust.

Table 5.3-3 provides a summary of the proposed Project's overall emissions resulting from the 6-month construction duration for comparison with the YSAQMD thresholds for VOC and NOx.

Table 5.3-3. Project Overall Construction Emissions (tons)

	VOC	NOx	CO	SOx	PM10	PM2.5
Overall Construction Emissions, without Dust Control Measures	0.67	5.82	5.00	0.01	8.31	1.31
Overall Construction Emissions, with Dust Control Measures	0.67	5.82	5.00	0.01	4.32	0.67
YSAQMD Significance Thresholds (tons/year)	10	10	N/A	N/A	N/A	N/A
Exceeds Significance Thresholds?	No	No	—	—	—	—

Notes: Results shown for Project with and without including applicant's proposed minimization measures for fugitive dust control.
Source: CalEEMod Results (5/3/2021).

Table 5.3-4 provides a summary of the proposed Project's maximum daily rate of emissions that result from construction for comparison with the YSAQMD threshold for PM10.

Table 5.3-4. Project Maximum Daily Construction Emissions (lbs./day)

	VOC	NOx	CO	SOx	PM10	PM2.5
Maximum Daily Construction Emissions, without Dust Control Measures	9.26	75.44	72.95	0.18	140.32	18.34
Maximum Daily Construction Emissions, with Dust Control Measures	9.26	75.44	72.95	0.18	72.73	9.58
YSAQMD Significance Thresholds (lbs./day)	N/A	N/A	N/A	N/A	80	N/A
Exceeds Significance Thresholds?	—	—	—	—	No	—

Notes: Results shown for Project with and without including applicant's proposed minimization measures fugitive dust control.
Source: CalEEMod Results (5/3/2021).

The proposed Project, without applying dust control minimization measures, would create construction-related emissions of PM10 that exceed YSAQMD emissions significance thresholds None of the other pollutant emissions during construction would exceed YSAQMD emissions significance thresholds. The Project would be located in a non-attainment area for ozone, PM10, and PM2.5. However, as shown in Table 5.3-3 and Table 5.3-4, the levels of PM10 and PM2.5 would be reduced by implementation of the fugitive dust control minimization measures proposed by the applicant during both construction and decommissioning. These measures require watering the active areas at least three times daily and/or using soil stabilizers for dust control. No other controls beyond these minimization measures would be necessary. The proposed Project's construction, and decommissioning, incorporating these

minimization measures, would not contribute significantly to a cumulatively considerable net increase of any criteria pollutants, and this impact would be less than significant.

DURING OPERATION, LESS THAN SIGNIFICANT IMPACT. Project-related on-site O&M activities would contribute a minor quantity of emissions due to site security and other upkeep activities that would occur in compliance with all applicable YSAQMD rules and regulations. No on-site employees would be needed to operate the solar facility. The daily emission rates for these O&M activities would be substantially less than those estimated for the construction phase, and shown in Table 5.3-4. Therefore, no mitigation would be necessary beyond the mandatory compliance with applicable rules and regulations. The proposed Project's operation would not contribute significantly to a cumulatively considerable net increase of any criteria pollutants, and this impact would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. During construction of the Project, its subsequent O&M, and its decommissioning, use of gasoline and diesel fuel by on-site vehicles and equipment would create small quantities of toxic air contaminants, of which diesel particulate matter emissions would be the primary concern. No other sources of toxic air contaminants would occur during Project construction or operation. During construction, on-site equipment and off-site on-road vehicle tailpipe emissions would be dispersed within the site, on a 147.42-acre parcel, and also along the travel routes for the on-road vehicles. Considering the limited nature of construction emissions (within a 6-month duration), the low quantities of emissions potentially generated during construction, and the dispersion of construction-related contaminants within the site and along travel routes, construction emissions would be unlikely to lead to ambient concentrations that could expose any sensitive receptor to incur a cancer risk above 10 in a million or an acute or chronic hazard index of one or more. Once operational, diesel particulate matter emissions would be negligible because the Project would involve no routine use of heavy-duty diesel vehicles or equipment, except as occasionally needed for maintenance or repairs. Therefore, the potential for the Project to expose sensitive receptors to substantial pollutant concentrations would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. Few sources of objectionable odors would occur as a result of construction or demolition-related activities, which would emit contaminates related to diesel exhaust, dust, and minor quantities of organic compounds. Project-related sources would be dispersed within the site, on a 147.42-acre parcel, with the nearest residence being along CR 23, approximately 2,000 feet south of project site. Any construction-related odors would occur only for a short time, and the Project's operation would not involve any use of malodorous substances or activities that would cause significant odors. Therefore, the Project would not generate any odorous emissions in sufficient quantities to impact any considerable number of persons, and this impact would be less than significant.

Air Quality Impact Conclusions

The only potentially significant impact that was identified is from fugitive dust emissions arising during construction and decommissioning. The applicant, as part of its project description, proposed implementing minimization measures that would reduce fugitive dust emissions and meet the requirements of the YSAQMD. Therefore, no mitigation measures are required.

5.4 Biological Resources

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.4.1 Setting

This section describes the biological resources that occur in the Proposed Project area. It includes a description of the existing biotic environment, including common plants and wildlife, sensitive habitats, special-status species and their locations in relation to the Proposed Project. The following section (5.4.2) presents an analysis of potential impacts to biological resources and, where necessary, specifies mitigation measures to reduce potential impacts to less-than-significant levels. Information used in preparing this section was derived from:

- California Natural Diversity Data Base (2020)
- Yolo County General Plan (Yolo County, 2009)
- Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan [HCP/NCCP] (https://www.yolohabitatconservancy.org)
- eBird (online database of bird observations) (https://ebird.org/home)
- Tricolored blackbird portal (https://tricolor.ice.ucdavis.edu/)
- Calflora (https://www.calflora.org/)
- Estep 2020 (Distribution, Abundance, and Habitat Associations of the Swainson's Hawk in Yolo County)
- Tompkins 2017 (Technical Studies and 20-year Retrospective for the Cache Creek Area Plan)
- Biological Resources Report for the Gibson Solar Facility Project (Sol Ecology, 2021)
- Estep 2021 (Supplemental Biological Resources Assessment for the Gibson Solar Farm, Yolo County)
- Other local research, surveys, and environmental documents

Located with the interior agricultural region of west-central Yolo County, and approximately 2.5 miles east of the low-elevation foothills of the inner Coast Range, the Project site and surrounding landscape is generally flat, with elevation in the immediate vicinity ranging from 156 to 175 feet above mean sea level and with an imperceptible elevational decrease toward the east and northeast. Other than irrigation channels extending along the northern, southern, and eastern boundaries of the site, and a small berm along a portion of the eastern boundary, there are no discernable topographic features. The climate in the vicinity of the project site is mild with average annual maximum temperature of 74.6 degrees Fahrenheit (^{o}F) and average annual minimum temperature of 47.6 ^{o}F, with winter rains and dry summers, and an average annual rainfall of approximately 20 inches.

The Project site consists of two fields which are entirely cultivated and used for production of hay, grain, and row crops. The approximately 40-acre northern field was prepared for row crops at the time of the field survey. In previous years, including 2020, this field was in alfalfa (Sol Ecology, 2021). The approximately 107-acre southern field was planted recently with sunflowers. Irrigation ditches extend along the southern, northern, and eastern borders of the fields, and are likely seasonally constructed along the western boundary and between the two fields as needed. An irrigation pump and small basin also occurs in the extreme southwest corner of the Project site. There is also a 2.5-acre irrigation reservoir on the adjacent property along the eastern boundary of the Project.

The Project site occurs within an intensively cultivated landscape. Neighboring lands include almond orchards on the east and south, wheat and idle field on the west, and tomatoes and almond orchard on the north. The surrounding landscape is similar with a matrix of orchards, hay crops, and annually or seasonally rotated field crops.

A field survey and site assessment were conducted on April 27, 2021 by Jim Estep from approximately 1000 hours to 1500 hours. The survey was conducted by walking the perimeter of the project and documenting land cover, natural communities, and plant and wildlife occurrences. The survey also extended approximately 0.25 miles from the project boundary to determine the presence of special-status species and other natural communities or wildlife habitats that could be potentially inspected, mapped, and photographed; wildlife species occurrences were recorded using binoculars and spotting scope, and occurrences and potential habitat for each special-status species was documented indirectly impacted by the project. Land uses, natural communities, and wildlife habitats were inspected, mapped, and photographed; wildlife species occurrences were recorded using binoculars and spotting scope, and occurrences and potential habitat for each special-status species was documented. The survey results are presented in Appendix C.

The survey was conducted to supplement the survey conducted on September 9, 2020 during the initial biological resource assessment of the project (Sol Ecology, 2021).

Vegetation Communities

Biological communities consist entirely of irrigated agriculture and the narrow perimeter areas considered incidental to agriculture including the surrounding irrigation ditches and dirt access roads. There are no sensitive biological communities or unique wildlife habitats on, or adjacent to, the Project site.

Irrigated Agriculture

Other than the perimeter ditches, the entire Project area consists of irrigated agriculture. Both fields are in production for the 2021 growing season. The smaller northern field appears to be prepared for tomatoes and the larger southern field is planted with sunflowers. Although supporting a relatively low diversity of wildlife use, this land cover is essential for species that have adapted to agricultural landscapes in the

Central Valley. These fields support increasing small rodent populations as the vegetation matures and provides cover, which in turn provides foraging habitat for several local raptor species, including red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), and great-horned owl (*Bubo virginianus*). When planted with hay crops, such as alfalfa, these fields also support an abundance of insect prey, an important food resource to herons, egrets, waterfowl, and many other waterbirds and raptors, particularly when the fields are flood irrigated.

Incidental to Agriculture

Permanent or semi-permanent irrigation ditches can provide important aquatic and adjacent upland habitat, particularly when vegetation is allowed to grow and is maintained along the perimeter of the ditch. A variety of small resident and migratory birds inhabit these areas. They also provide refugia habitat for small rodents that can repopulate adjacent fields during the following growing season. Small, temporary irrigation ditches usually provide limited value but may still have incidental or temporary value to wildlife as movement corridors.

Several species were detected within the irrigated agriculture and adjacent irrigation ditches during the April 27, 2021, field survey (see Appendix C) including great blue heron (*Ardea Herodias*), turkey vulture *Cathartes aura*), Swainson's hawk, common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), Scrub jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), black-tailed jackrabbit (*Lepus californicus*), and sign of California ground squirrel (*Otospermophilus beecheyi*), and pocket gopher (*Thomomys bottae*).

Special-Status Plants and Animals

Special-status species are generally defined as species that are assigned a status designation indicating possible risk to the species. These designations are assigned by state and federal resource agencies (e.g., California Department of Fish and Wildlife [CDFW], U.S. Fish and Wildlife Service [USFWS]) or by private research or conservation groups (e.g., National Audubon Society, California Native Plant Society). Assignment to a special-status designation is usually done on the basis of a declining or potentially declining population, either locally, regionally, or nationally. The extent to which a species or population is at risk usually determines the status designation. The factors that determine risk to a species or population generally fall into one of several categories, such as habitat loss or modification affecting the distribution and abundance of a species; environmental contaminants affecting the reproductive potential of a species; or a variety of mortality factors such as hunting or fishing, interference with man-made objects (e.g., collision, electrocution, etc.), invasive species, or toxins. For purposes of this Initial Study, special-status species are defined as follows:

- Species that are listed, proposed, or candidates for listing under the federal Endangered Species Act (50 CFR 17.11 – listed; 61 FR 7591, February 28, 1996 – candidates);
- Species that are listed or proposed for listing under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.);
- Species that are designated as Species of Special Concern by CDFW;
- Species that are designated as Fully Protected by CDFW (Fish and Game Code, Sections 3511, 4700, 5050, and 5515;
- Species included on Lists 1B or 2 by the California Native Plant Society;
- Species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380).

A records search of CDFW's California Natural Diversity Data Base (CNDDB), and other sources of occurrence data (e.g., eBird, Tricolored Blackbird Portal, other survey efforts) provide the initial reference for special-status species occurrences on, and around, the project site. However, a CNDDB records search encompasses a much larger area than the project site and does not address the presence/absence of suitable habitat within the project site. Instead, it is used as initial guidance to indicate the species that have been observed or have the potential to occur within the general area of the project site and to focus the next step in the assessment, habitat availability. Potential for species to occur is then based on the presence/absence of suitable habitat on, or in, the vicinity of the project site. Finally, specific surveys within suitable habitat determines the actual presence/absence of potentially occurring species.

Table 5.4-1 lists the special-status species with potential to occur in the vicinity of the project site based on existing information about their local and regional distribution and species lists provided by CNDDB and other sources. The table also describes habitat associations; the presence/absence of suitable habitat; and whether or not the species has been reported from the project site or observed during the field surveys. Refer to the attached biological resource assessments (Sol Ecology, 2021; Estep, 2021) for illustrations of reported special-status species occurrences in the vicinity of the project site for each potentially occurring species. Table 5.4-1 lists species that are known, or have potential to occur in the broader region surrounding the project site. Those that have potential to occur on the project site are further addressed below.

Table 5.4-1. Special-Status Species that Could Occur in the Project Vicinity

Species	Status	Habitat	Occurrence in Study Area
Plants			
Baker's navarretia *Navarretia leucocephala*	CNPS 1B	Vernal pools	Absent. No habitat, no occurrences
Round-leaved filaree *Erodium macrophyllum*	CNPS 2	Grasslands	Absent. No habitat, no occurrences
Adobe lily *Fritillaria pluriflora*	CNPS 1B	Grasslands	Absent. No habitat, no occurrences
Brewer's western flax *Hesperolinon breweri*	CNPS 1B	Grasslands	Absent. No habitat, no occurrences
Heckard's pepper-grass *Lepidium latipes v. heckardii*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Heartscale *Atriplex cordulata v. cordulata*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
California alkali grass *Puccinellia simplex*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Alkali milkvetch *Astragalus tener var. tener*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Ferris' milk-vetch *Astragalus tener v. ferrisiae*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Brittlescale *Atriplex depressa*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
San Joaquin spearscale *Extriplex joaquinana*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Palmate-bracted bird's beak *Chloropyron palmatum*	CNPS 1B, SE, FE	Alkali grasslands	Absent. No habitat, no occurrences

Table 5.4-1. Special-Status Species that Could Occur in the Project Vicinity

Species	Status	Habitat	Occurrence in Study Area
Saline clover *Trifolium hydrophilum*	CNPS 1B	Alkali grasslands	Absent. No habitat, no occurrences
Colusa layia *Layia septentrionalis*	CNPS 1B	Foothill woodland, chaparral, grassland	Absent. No habitat, no occurrences
Keck's checkerbloom *Sidalcea keckii*	CNPS 1B	Foothill woodland, grassland	Absent. No habitat, no occurrences
Invertebrates			
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FE	Elderberry shrubs	Absent. No habitat, no occurrences
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools	Absent. No habitat, no occurrences
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Vernal pools	Absent. No habitat, no occurrences
Amphibians			
western spadefoot Spea (=*Scaphiopus) hammondii*	SSC	Grasslands, valley foothill woodlands	Absent. No habitat, no occurrences
California tiger salamander *Ambystoma californiense*	SE, FE	Grassland, oak woodland, seasonal pools, ponds	Absent. No habitat, no occurrences
Reptiles			
Western pond turtle *Actinemys marmorata*	SSC	Streams, ponds, canals	Absent. No habitat, no occurrences
Giant garter snake *Thamnophis gigas*	SE, FE	Emergent wetland, canals, rice fields	Absent. No habitat, no occurrences
Birds			
Northern harrier *Circus hudsonius*	SSC	Grasslands, pastures, fields, seasonal wetland	Possible (foraging), no occurrences
White-tailed kite *Elanus leucurus*	FP	Nests in trees, hunts in grassland/farmland/wetland	Possible (foraging), no occurrences
Swainson's hawk *Buteo swainsoni*	ST	Nests in trees, hunts in grassland and farmlands	Present, active nest onsite
mountain plover *Charadrius montanus*	SSC	Winter range – grasslands, plowed fields	Possible, no occurrences
Burrowing owl *Athene cunicularia*	SSC	Grasslands, field edges with ground squirrel activity	Possible (foraging), no occurrences
Short-eared owl *Asio flammeus*	SSC	Grasslands, prairies, marshes	Absent. No habitat, no occurrences
Bank swallow *Riparia riparia*	ST	Vertical cut banks along streams	Absent. No habitat, no occurrences
Loggerhead shrike *Lanius ludovicianus*	SSC	Grasslands, agricultural areas	Possible (foraging), no occurrences
Yellow-breasted chat *Icteria virens*	SSC	Riparian thickets with willow near waterways for nesting.	Absent. No habitat, no occurrences
Yellow warbler *Setophaga petechia brewsteri*	SSC	Riparian forests, montane shrub in open conifer forests.	Absent. No habitat, no occurrences
Grasshopper sparrow *Ammodramus savannarum*	SSC	Grasslands	Absent. No habitat, no occurrences

Table 5.4-1. Special-Status Species that Could Occur in the Project Vicinity

Species	Status	Habitat	Occurrence in Study Area
Tricolored blackbird *Agelaius tricolor*	ST	Marsh, bramble, silage, grassland, pastures	Possible (foraging), no occurrences
Mammals			
Palid bat *Antrozous pallidus*	SSC	Grasslands, shrub lands, woodlands.	Absent (except foraging above site)
Townsends big-eared bat *Corynorhinus townsendii*	SSC	Caves, bridges, buildings	Absent (except foraging above site)
Western red bat *Lasiurus blossevillii*	SSC	Riparian woodland, fruit orchards	Absent (except foraging above site)

Definitions Regarding Potential Occurrence:

Present:	Species or sign of its presence observed on the site
Likely:	Species or sign not observed on the site, but reasonably certain to occur on the site
Possible:	Species or sign not observed on the site, but conditions suitable for occurrence
Unlikely:	Species or sign not observed on the site, conditions marginal for occurrence
Absent:	Species or sign not observed on the site, conditions unsuitable for occurrence

STATUS CODES:

FT	Federally Threatened
FE	Federally Endangered
FC	Federal Candidate
SE	State Endangered
ST	State Threatened
SC	State Candidate
SSC	California Species of Special Concern
FP	Fully Protected
WL	Watch List
CNPS	California Native Plant Society Listing
1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3	Plants about which we need more information – a review list
4	Plants of limited distribution – a watch list
.1	Seriously threatened in California (high degree/immediacy of threat)
.2	Fairly threatened in California (moderate degree/immediacy of threat)
.3	Not very threatened in California (low degree/immediacy of threats or no current threats known)

Northern harrier

The northern harrier is a state species of special concern that nests on the ground in grassland, seasonal marsh, and occasionally in some cultivated habitats. The species is frequently observed throughout most of Yolo County; however, there are relatively few reported nest sites due to the difficulty confirming the location of ground nests. CNDDB (2020) reports very few nest sites, and none from the vicinity of the project site. However, there are undoubtedly additional nesting territories in the general vicinity of the project site. eBird reports numerous occurrences of the species in the vicinity of the project site, but does not report confirmed breeding sites. The project site supports suitable cultivated foraging habitat for northern harrier, but potential nesting is dependent on the agricultural cover type in any given year. Tomatoes and sunflower are not considered suitable cover types for nesting. The surrounding ditches and canals also do not support sufficient habitat for nest sites.

Swainson's Hawk

The Swainson's hawk is a medium-sized raptor associated with generally flat, open landscapes. In the Central Valley it nests in mature native and nonnative trees and forages in grassland and agricultural habitats. Although a state-threatened species, the Swainson's hawk is common in Yolo County during the spring-summer breeding season due to the availability of nest trees and the agricultural crop patterns that are compatible with Swainson's hawk foraging. During a County-wide census in 2020, nearly 400 active nests sites were identified in Yolo County (Estep, 2020); at least 18 of which are within 5 miles of the project site, and the nearest of which is less than 1 mile south of the Project site.

During the April 27, 2021, survey, an active Swainson's hawk nest was found in the isolated walnut tree along the western edge of the project site. There are no other potential nest trees in the immediate vicinity of the project site. The project site also supports suitable cultivated foraging habitat for Swainson's hawks.

White-tailed kite

The white-tailed kite, a state fully protected species, is a highly specialized and distinctively marked raptor associated with open grassland and seasonal wetland landscapes. It typically nests in riparian forests, woodlands, woodlots, and occasionally in isolated trees, primarily willow, valley oak, cottonwood, and walnut) and some nonnative trees. It forages in grassland, seasonal wetland, and agricultural lands, but is more limited in its use of cultivated habitats compared with the Swainson's hawk. As a result, the species occurs throughout most of Yolo County, but in low breeding densities (Dunk, 1995; Erichsen, 1995; Estep, 2020).

No white-tailed kites were detected during the April survey and no nests have been reported from the immediate vicinity of the project site. The nearest recently reported nest is approximately 13 miles south-east of the project site along Willow Slough (Estep, 2020). Cache Creek Conservancy reports white-tailed kites on the preserve during the breeding season (Tompkins et al., 2017) and eBird reports numerous breeding season occurrences in the area, including near Esparto, south of Madison, and several 2020 occurrences from Cache Creek Preserve, approximately 6 miles east of the project site, and others both upstream and downstream along Cache Creek. The isolated walnut tree on the west side of the project site is suitable for nesting; however, as noted above, it is currently occupied by nesting Swainson's hawks. No other potential nesting habitat occurs in the immediate vicinity (within 0.25 mile) of the project site. The cultivated fields on the project site represent suitable foraging habitat for this species.

Mountain Plover

The mountain plover (*Charadrius montanus*), a state species of special concern, was formerly an occasional winter visitor to a specific area of Yolo County, but reported occurrences have declined sharply in at least the last decade. The species arrives on its wintering grounds in California from November through December where it remains through March. During winter, the species roosts and forages in short grass prairies, pastureland, grazed grasslands, and occasionally—as with most of the reported occurrences in Yolo County—in disked agricultural fields (Manolis and Tangren, 1975; Hunting et al., 2001; Hunting and Edson, 2008). Small flocks had been observed in recently plowed agricultural fields near Woodland and Davis, especially along County Roads 16, 25, 27, and 102 and in unflooded portions of the Yolo Bypass. CNDDB (2020) reports no occurrences in the vicinity of the project site; however, eBird reports a 2000 sighting in a field less than 1 mile west of the project site and several other sites in the Dunnigan Hills and Hungry Valley, north of the project site. Mountain plover occurrence in cultivated fields is incidental and dependent on the condition of the field. All reported occurrences have been in plowed or prepared fields that are not planted and have virtually no vegetation. The project site fields could potentially support incidental occurrences of mountain plover during the winter if they meet this condition.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*), a state species of special concern, occurs in open, dry grasslands, agricultural and range lands, and desert habitats. In the Central Valley, they are associated with remaining grassland habitats, pasturelands, and edges of agricultural fields. They also occur in vacant lots and remnant grassland or ruderal habitats within urbanizing areas. Historically nesting in larger colonies, due to limited nesting habitat availability most of the more recent occurrences are individual nesting pairs or several loosely associated nesting pairs. The burrowing owl is a subterranean-nesting species, typically occupying the burrows created by California ground squirrels. They also occupy artificial habitats, such as those created by rock piles and occasionally in open pipes and small culverts. They forage for small rodents and insects in grassland and some agricultural habitats with low vegetative height. Key to burrowing owl occupancy are grassland or ruderal conditions that maintain very short vegetative height around potential nesting burrows (Gervais et al., 2008).

In Yolo County, burrowing owls occur mainly in the grassland and pasture habitats of the southern pan-handle and in cultivated and ruderal habitats in the Davis area. Nesting and wintering occurrences have also been reported from the area immediately north of Winters, in the Dunnigan Hills, and elsewhere in the grassland foothills along the west side of the valley. Neither CNDDB or eBird report any breeding or wintering occurrences in the immediate vicinity of the project site. The cultivated crops on the project site support marginal habitat foraging habitat for burrowing owls. The only potential for occurrence is along the perimeter canals and ditches; however, no evidence of ground squirrel use or other potential burrow-ing habitat was detected during surveys.

Loggerhead Shrike

The loggerhead shrike occurs in open habitats with scattered trees, shrubs, posts, fences, utility lines, or other perches. It nests in small trees and shrubs and forages for small rodents, reptiles, and insects in pas-tures and agricultural lands (Humple, 2008). An underreported species in CNDDB, no records are available for Yolo County (CNDDB, 2020). However, eBird reports numerous incidental records throughout Yolo County, including the vicinity of the project site. The grassland and oak savannah foothills along the western edge of the valley are thought to be the highest value habitat for this species; but some cultivated landscapes may also provide suitable conditions for nesting and foraging.

No loggerhead shrikes were detected during surveys and no nests have been reported from the project site or immediate vicinity (CNDDB, 2020; eBird, 2021). The project site and immediately surrounding lands do not support suitable nesting habitat for shrikes. The species is more likely to be incidentally observed foraging in the cultivated habitats surrounding the project site.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a state-listed threatened species that nests in colonies from several dozen to several thousand breeding pairs. They have three basic requirements for selecting their breeding colony sites: open accessible water; a protected nesting substrate, including either flooded or thorny or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Beedy and Hamilton, 1999). Nesting colonies are found in freshwater emergent marshes, in willows, blackberry bramble, thistles, or nettles, and in silage and grain fields (Beedy and Ham-ilton, 1999).

Most recently reported tricolored blackbird colonies in Yolo County occur in the eastern part of the county, including Conaway Ranch and at locations in the Yolo Bypass, and along the western edge of the valley (CNDDB 2020, Tricolored Blackbird Portal); however, eBird reports numerous incidental non-breeding or

foraging occurrences throughout the interior of the county. CNDDB also reports historic breeding locations that have long since been abandoned or the breeding habitat no longer exists. Although the cultivated fields on the project site may provide incidental foraging habitat, there is no breeding habitat for tricolored blackbirds on or in the vicinity of the project site.

Special-status Bats

Three special status bats potentially occur incidentally in the vicinity of the project site, include pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), and western red bat (*Lasiurus blossevillii*). All are state species of special concern. Pallid bat occurs primarily in shrublands, woodlands, and forested habitats, but also can forage in grasslands and agricultural areas. Townsends's big-eared bat occurs in a variety of woodland and open habitats, including agricultural areas. Western red bat occurs in wooded habitats, including riparian and fruit orchards, and grasslands. Pallid bat and Townsend's big-eared bat roost in mines, caves, rocky crevices, large hollow trees, and occasionally in large open buildings that are usually abandoned or infrequently inhabited. Western red bat usually roosts in large trees (Pierson and Rainey, 1998; Pierson, 1998; Fellers and Pierson, 2002; Pierson et al., 2006).

Most reported occurrences are from the foothills and higher elevation areas of western Yolo County; however, CNDDB (2020) reports a red bat occurrence from the confluence of Dry Creek and Putah Creek in 2013. Also see CNDDB locations reported in Sol Ecology (2021). There are no suitable trees or other potential roosting habitat for these species on or in the vicinity of the project site. The nearest marginally suitable roosting habitat for red bat is along Cache Creek, north of the project site. Although the agricultural landscape is not generally considered suitable habitat for these species, they could potentially hunt for insects above the project site.

Jurisdictional Waters

There are no wetlands on the project site. However, irrigation canals and ditches may also support wetland values and function, particularly along permanent canals with frequent flows and where wetland vegetation has developed. A formal wetland delineation was conducted at the time of the September 9, 2020, site visit (Sol Ecology, 2021). The delineation of wetland boundaries was based on the presence/absence of indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The boundaries of non-wetland waters were identified by locating the ordinary high-water mark. Biologists identified wetland and non-wetland waters; however, because the wetland and non-wetland waters were established as part of normal and ongoing agricultural activities, the wetland and non-wetland waters found on the site are not potentially subject to regulation by the federal government (U.S. Army Corps of Engineers [USACE]) and the State of California (Regional Water Quality Control Board [RWQCB] and CDFW) so long as agricultural activities are ongoing and not abandoned. Further, the irrigation canals around the perimeter of the project site will not be abandoned or otherwise affected by the proposed project.

Regulatory Background

Several state and federal laws and regulations are relevant to the proposed project. Each is briefly described below.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts of proposed projects be reduced to a less-than-significant level through adoption of feasible avoidance, minimization, or mitigation measures unless overriding considerations are identified and documented.

During the CEQA review process, environmental impacts are assessed and a significance determination provided based on pre-established thresholds of significance. Thresholds are established using guidance from CEQA, particularly Appendix G of the State CEQA guidelines and CEQA Section 15065 (Mandatory Findings of Significance). CEQA guidance is then refined or defined based on further direction from the lead agency.

Consistent with Appendix G of the State CEQA guidelines, a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in one or more of the following:

- Substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
  - A substantial adverse effect on a special-status wildlife species is typically defined as one that would:
    - Reduce the known distribution of a species,
    - Reduce the local or regional population of a species,
    - Increase predation of a species leading to population reduction,
    - Reduce habitat availability sufficient to affect potential reproduction, or
    - Reduce habitat availability sufficient to constrain the distribution of a species and not allow for natural changes in distributional patterns over time.
  - Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or interference with the use of native wildlife nursery sites.
    - Substantial interference with resident wildlife movement is typically defined as obstructions that prevent or limit wildlife access to key habitats, such as water sources or foraging habitats, or obstructions that prohibit access through key movement corridors considered important for wildlife to meet needs for food, water, reproduction, and local dispersal.
    - Substantial interference with migratory wildlife movement is typically defined as obstructions that prevent or limit regional wildlife movement through the project area to meet requirements for migration, dispersal, and gene flow that exceed the defined baseline condition.

Consistent with CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has 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 an endangered, rare or threatened species.

CEQA defines the significance of an impact on a state-listed species based on the following:

- Appendix G of the State CEQA guidelines states that a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in "substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS"; and

- CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has the potential to "substantially reduce the number or restrict the range of an endangered, rare or threatened species."

California Fish and Game Code 3503.5 (Birds of Prey)

Section 3503.5 of the Fish and Game Code prohibits the take, possession, or destruction of any birds of prey or their nests or eggs. CDFW may issue permits authorizing take pursuant to the California Endangered Species Act.

Yolo County General Plan

The Yolo County General Plan includes numerous policies regulating and emphasizing the protection of natural resources and agricultural lands that provide wildlife habitat. Those most relevant to the proposed project include the following (Yolo County, 2009):

Policy AG-1.6 Continue to mitigate at a ratio of no less than 1:1 the conversion of farm land and/or the conversion of land designated or zoned for agriculture, to other uses.

Policy AG-2.8 Facilitate partnerships between agricultural operations and habitat conservation efforts to create mutually beneficial outcomes.

Policy CO-2.1 Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.

Policy CO-2.3 Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.

Policy CO-2.9 Protect riparian areas to maintain and balance wildlife values.

Policy CO-2.16 Existing native vegetation shall be conserved where possible and integrated into new development if appropriate.

Policy CO-2.22 Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.

Policy CO-2.38 Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds).

Policy CO-2.41 Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.

5.4.2 Environmental Impacts and Mitigation Measures

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?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED, as described below.

Special-Status Plants

The project site does not support habitat for any of the special-status plant species known to occur in Yolo County; and therefore, the project would have no impact on these species.

Special-Status Wildlife

Northern Harrier, Western Burrowing Owl, Loggerhead Shrike, Tricolored Blackbird, Mountain Plover

There is no suitable nesting habitat for northern harriers, western burrowing owls, loggerhead shrikes, tricolored blackbirds, or mountain plovers on the project site. Although it is possible that these species could occasionally hunt or otherwise occur on the project site, the conversion of 147 acres of cultivated field to a solar array would not constitute a significant impact or need for mitigation or avoidance measures. By maintaining a grass/pollinator plant substrate on the project site, foraging value may increase for some species.

Special-status Bats

No potential roosting habitat would be removed or otherwise disturbed by the proposed project. Therefore, the project would have no impact on pallid bat, western red bat, or Townsend's big-eared bat.

Swainson's Hawk

The project will impact approximately 147 acres of Swainson's hawk foraging habitat. Representing 0.05 percent of the suitable foraging habitat in Yolo County (Estep, 2020); the project is not expected to affect the local or regional breeding population. In addition, because the project site will be managed with a grassland and pollinator plant substrate, it is expected to support relatively high-value habitat for rodent and insect prey species, and serve as a source of recolonization of rodent species into adjacent cultivated fields, similar to fallow or weedy fields or uncultivated grasslands and pastures. See the Project Description (Section 4) for an explanation of agrivoltaic systems, vegetation management, and apiary operations. These benefits are expected to enhance the overall ecologic function of the site (Dolezal et al., 2021) and enhance foraging value to Swainson's hawks and other raptors. Also, recent research has shown that Swainson's hawks and other raptor species will continue to hunt within similarly sized and managed solar facilities that are integrated within a diverse agricultural matrix (Estep, 2013). As a result, the conversion of 147 acres of irrigated cropland to a solar field managed to enhance biological values, including prey resources for the Swainson's hawk, is not considered a significant impact to Swainson's hawk.

The project site supports an active Swainson's hawk nest (the nest tree could also be potentially used by nesting white-tailed kites). Although the nest tree will not be removed and is approximately 30 feet from the edge of the solar array, and although there are no noise or visual disturbances associated with project operation, construction, and decommissioning activities during installation/removal of the project could

disturb the active nest and potentially result in nest abandonment and mortality of eggs or young. Mortality of this state-listed species resulting from construction/demolition-related disturbances would be considered a significant impact. However, this impact would be avoided with implementation of Mitigation Measure (MM) BIO-1. Therefore, the impact of this proposed project is less than significant with 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, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

NO IMPACT. The entire project site consists of annually rotated irrigated cropland surrounded by dirt farm roads and ruderal vegetation adjacent to narrow irrigation canals or ditches. The project site does not support, and thus the project would not remove or disturb, any sensitive natural communities. The project would convert 147 acres of cultivated field used historically for row, grain, and hay crops to a solar array with the substrate below the panels planted with grasses, forbs, and a variety of pollinator plant species, providing a food resource for 10 apiaries established across the project site. As a result, managed throughout the life of the project using the principals of agrivoltaics (i.e., maintaining agricultural use soil stability and enhancement, vegetative cover and pollinator plant diversity, etc., within the solar array), the overall biological value of the project site may be enhanced compared to its current use. Therefore, the proposed project would have no significant impacts on sensitive biological communities.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?

NO IMPACT. The project site does not support state or federally protected wetlands, and thus, no filling, hydrological interruption or other impacts to wetlands will occur as a result of project implementation. Functioning of the concrete-lined irrigation channels on the south and east sides of the project site will not be affected by the project. Therefore, the proposed project would have no significant impacts on state or federally protected wetlands.

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 wildlife nursery sites?

NO IMPACT. The project is not located within a wildlife movement corridor. The site and surrounding landscape consist of similar topography and agricultural land use characteristics. The project site and surrounding lands do not include unique topography or vegetation that would concentrate wildlife use or occurrence. Therefore, wildlife movement is expected to occur similarly over a broad geographic area and the proposed project would have no significant impact.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

NO IMPACT. Yolo County General Plan Conservation and Open Space policies are designed to protect biological resources in Yolo County. In particular, Goal CO-2 seeks to protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the ecological integrity of the landscape. The proposed project was designed according to the principals of agrivoltaics, which allows for passive agricultural support uses among the solar arrays within an otherwise cultivated landscape. This is accomplished through the use of the site for apiary purposes, which includes establishing 10 apiary sites and managing the substrate with grasses,

forbs, and a variety of pollinator species. The site may also be periodically grazed for vegetation management. Doing so will provide for some agricultural activity onsite and provide a source of pollinators for offsite agricultural operations. Managing the project in this way also increases the overall ecological value of the project site, by establishing a stable grassland substrate to encourage rodent and other grassland species, developing a mix of pollinator plants to enhance invertebrate species populations, protecting and enhancing soils and soil stability, and providing consistent foraging and cover habitat value for aerial and ground predators. As a result, the project will be consistent with the Conservation and Open Space policies listed above, and will therefore have no significant impact.

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

NO IMPACT. In 2018, Yolo County adopted the HCP/NCCP. However, solar energy projects are not covered under the HCP/NCCP, and thus the proposed project is not provided coverage under the plan and is not subject to the provisions of the plan. The project itself does not conflict with any provisions of the HCP/NCCP or its conservation strategy and therefore would have no impact.

Mitigation Measure

MM BIO-1 Avoid Construction and Decommissioning-related Disturbances to Active Swainson's Hawk Nest. To avoid this impact, construction and decommissioning should occur during the non-breeding season, September 1 to March 15, unless it is determined that the nest is inactive or young have fledged during the construction/demolition year. If construction/decommissioning is scheduled to occur during the breeding season (March 15 to August 30), surveys should be conducted prior to project activities to determine activity at the nest site. If the nest is active, a 1,320-foot no-disturbance buffer should be established around the nest to minimize disturbance. Alternatively, an incidental take permit may be sought in consultation with CDFW pursuant to Section 2080 of the state endangered species act. Doing so, however, will require additional compensatory mitigation to be specified by CDFW during the consultation. Because there are no other potential nest trees within 1,320 feet of the project site, no other preconstruction (or pre-demolition) surveys for Swainson's hawk or white-tailed kite are necessary.

Biological Resources Impact Conclusions

The proposed project is designed such that biological resource values on the project site are expected to increase over time. The conversion from an annually cultivated field to a stable grassland/pollinator plant substrate may enhance habitat value for a variety of invertebrate, mammal, and bird species. Integrated into an intensive agricultural landscape, these values are expected provide onsite and offsite benefits for wildlife, soils, and related biological systems, while also providing the community benefit of clean, renewable energy. Only one potentially significant impact was identified: disturbance to an active Swainson's hawk nest. This impact can be avoided through the proposed mitigation (BIO-1), either avoidance through project construction/decommissioning scheduling, establishment of buffers, or through consultation with CDFW and potential compensatory mitigation.

5.5 Cultural Resources

CULTURAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.5.1 Setting

Approach to Analysis of Cultural Resources and Previous Cultural Resources Studies

Cultural resources reflect the history, diversity, and culture of the region and the people who created them. They are unique in that they are often the only remaining evidence of activity that occurred in the past. Cultural resources can be natural or built, purposeful or accidental, physical or intangible. They encompass archaeological, traditional, and built environmental resources, including buildings, structures, objects, districts, and sites.

Information presented in this section, and the subsequent analysis, was based on the information presented in a report entitled *Cultural Resources Pedestrian Survey for the Gibson Ranch Solar Project by* Lauren DeOliveira and James Allan of Aspen Environmental Group (Aspen) (DeOliveira and Allan, 2021). It was provided to Yolo County as Confidential Appendix D.

Cultural Resources Study Area

The Project area is located approximately 10 miles west of Woodland and 0.5 mile west of the town of Madison in unincorporated Yolo County and consists of 147 acres (Project Area). An archaeological record search and an intensive pedestrian survey were conducted as part of the cultural resources inventory. The record search was conducted at the California Historical Resources Information System (CHRIS) Northwest Information Center (NWIC) in November of 2020, which consisted of a records check of the Project Area plus a 0.5-mile radius (Study Area) centered around the Project Area. The intensive pedestrian survey Project Area was conducted in April and July of 2021 (DeOliveira and Allan, 2021).

Cultural Record Search Results

The record search revealed that 11 previously conducted studies have been completed within the Study Area, with one study, conducted in 1965, encompassing a portion of the Project Area. Two historic era resources were previously documented within the Study Area; however, no previously recorded historic- or prehistoric-aged resources have been documented within the Project Area (DeOliveira and Allan, 2021).

Pedestrian Survey

On April 13, 14, and 15, 2021, an intensive archaeological survey of the solar farm portion of the Project was conducted by Elliot D'antin, B.S., Cultural Resources Specialist for Aspen. Mr. D'antin is qualified under the Secretary of the Interior's Qualification Standards and Guidelines for Archaeology and Historic Preservation and has in-depth familiarity with the prehistoric and historic period cultural resources of Yolo County. Mr. D'antin used 30-meter transects to cover the entirety of the solar farm Project area with 100 percent ground visibility.

On July 22, 2021, an intensive archaeological survey was conducted of the proposed gen-tie line corridor by Mark C. Robinson M.S., RPA, Cultural Resources Specialist for Aspen. The gen-tie alignment extends from the solar farm south along an existing access road between two orchards, until its terminus about 190 feet north of County Road 23. However, the entire length of the access road to County Road 23 was surveyed. Mr. Robinson is qualified under the Secretary of the Interior's Qualification Standards and Guidelines for Archaeology and Historic Preservation and has experience with the prehistoric and historic period cultural resources of northern California. Mr. Robinson used 5-meter transects to cover the width of the gen-tie alignment. The ground visibility was 50 to 100 percent.

The surveyors examined the ground surface for the presence of prehistoric artifacts, historic-era artifacts, sediment discolorations that could indicate the presence of cultural features, and depressions or other features that could indicate the presence of structures or foundations.

No prehistoric or historic-era resources were observed during the survey.

Native American Heritage Commission and Tribal Outreach

On March 29, 2021, Aspen requested that the Native American Heritage Commission (NAHC) complete a search of its Sacred Lands Files to determine if resources significant to Native Americans have been recorded within the Project footprint. On April 8, 2021, Aspen received a response from the NAHC stating that the search of its Sacred Lands File was negative for the presence of resources within the Project footprint (Appendix 1). The NAHC also provided their list of Native American tribal governments to contact for additional information regarding resources in the area. Aspen sent tribal outreach letters on April 12, 2021, to the Yocha Dehe Wintun Nation asking if any additional information could be provided regarding resources within the Project footprint. No response to this outreach has been received to date. However, on March 18, 2021, Yocha Dehe Wintun Nation's Cultural Resources Manager Laverne Bill provided a response to a separate outreach effort from the County to the Yocha Dehe Wintun Nation. Mr. Bill determined that the Project is within the aboriginal territories of the Yocha Dehe Wintun Nation and that the Nation has a cultural interest and authority in the proposed Project Area. Mr. Bill further stated:

> *Based on the information provided, the Tribe is not aware of any known cultural resources near this project site and a cultural monitor is not needed. However, we recommend cultural sensitivity training for any pre-project personnel. We also request that you incorporate Yocha Dehe Wintun Nation's Treatment Protocol into the mitigation measures for this project. Please submit the updated mitigation measures to the Cultural Resources Department once completed. Additionally, please send us the cultural resource study and detailed project information, including any plans for ground disturbance for this project.*

Environment

The approximately 147-acre Project Area is located approximately 10 miles west of Woodland and 0.5 mile west of the town of Madison in unincorporated Yolo County. Specifically, the Project Area is located within Township 10 north and Range 1 west on the *Madison* USGS 7.5-minute Quadrangle.

The Project Area is surrounded by land zoned for intensive agriculture, east of the California Coastal Range. The Project Area itself has gone through decades of agriculturally related ground disturbance. The south fork of Willow Slough extends in an east to west direction approximately 1.5 miles east of the Project area and Cache Creek is to the north of this channel. Additionally, Cottonwood Slough extends in the same east to west direction approximately 1-mile south (DeOliveira and Allan, 2021).

The climate in the vicinity of the Project Area is mild with average annual maximum temperature of 74.6° Fahrenheit and average annual minimum temperature of 47.6° Fahrenheit, with winter rains and dry summers, and an average annual rainfall of approximately 20 inches.

Prehistory

The prehistory of the Sacramento Valley has been described in terms of general modes of life characterized by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Three general patterns of resource use for the period between 4500 years before present (B.P.) and the contact period include the Windmiller, Berkeley, and Augustine patterns (DeOliveira and Allan, 2021).

The Windmiller Pattern (4500 B.P.–2500 B.P.) shows evidence of a mixed economy that relied on the procurement of game and plant foods. The archaeological record contains numerous projectile points and a wide range of faunal remains. Fishing was also important.

The Windmiller Pattern ultimately changed to a more specialized adaptation termed the Berkeley Pattern (2500 B.P.–1500 B.P.). A reduction in the number of handstones and millingstones and an increase in mortars and pestles is inferred to indicate a greater dependence on acorns. Although gathered plant resources gained importance during this period, the continued presence of projectile points and atlatls (spear-throwers) in the archaeological record indicates that hunting was still an important activity.

The Berkeley Pattern was superseded by the Augustine Pattern around 500 CE. The Augustine Pattern reflects a change in subsistence and land use patterns to those of the ethnographically known people (Patwin, Plains Miwok) of the historic era. This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Exchange became well developed, with an even more intensive emphasis on the use of the acorn, as evidenced by shaped mortars and pestles and numerous hopper mortars. Other notable elements of the Augustine Pattern's artifact assemblage include flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels (Cosumnes Brownware).

The presence of small projectile point types, referred to as the Gunther Barbed series, indicates the use of the bow and arrow. Other traits associated with the Augustine Pattern include the introduction of pre-interment burning of offerings in a grave pit during mortuary rituals, increasingly sedentary villages, population growth, and an incipient monetary economy in which beads were used as a standard of exchange.

Ethnography

The Project Area is located within the traditional territory claimed by the California Native American group known as the Patwin. The Patwin inhabited lands that include almost the entire Yolo County. As with most of the hunting-gathering groups of California, the tribelet represented the basic social and political unit. Typically, a tribelet headman would reside in a major village where ceremonial events were often held. The position of tribelet headman was patrilineal inherited among the Patwin. The headman's main duties involved administering ceremonial events and economic activities, although village elders had considerable influence over political matters. The Patwin constructed four types of structures, all occurring in or around the villages: dwellings, ceremonial dance houses, sweat houses, and menstrual huts. All of these were semi-subterranean, earth-covered structures. The Patwin economy was based principally on the use of natural resources from the riparian corridors, wetlands, and grasslands adjacent to the Sacramento River and along drainages of the North Coast Range. The family was the basic subsistence unit that used this resource mosaic.

The Patwin relied on riparian and wetland resources, and fish, shellfish, and waterfowl were important sources of dietary protein. The majority of important plant resources in the Patwin diet came from the grasslands of the Sacramento River floodplain and the woodlands of the Coast Range foothills. Acorns were a staple food of all of the Patwin tribelets. The processed meal was then used to make a gruel or bread. A number of seed plants were also important secondary food sources, such as sunflower, wild oat, alfilaria, clover, and bunchgrass.

Regional History

The historic period of California can be broken into three periods: the Spanish Period, the Mexican Period, and the American Period.

Spanish Period (1769 to 1821). Starting in 1769 at what would become San Diego, Spain sought to reinforce its claims to California, as a territory of Mexico, by establishing a series of missions to pacify and Christianize the Indians, with the object of making them stable, tax-paying citizens of Mexico. The Central Valley was explored by Spaniards as early as 1808. During the early 1800s, the region was also explored by hunters and trappers who found the banks of the rivers and streams rich with beaver and otter. They used to "cache" their pelts near Cache Creek, hence the name.

Mexican Period (1821 to 1848). Mexico gained her independence from Spain in 1821, and Alta California became one of the provinces of the new Republic of Mexico. After the government secularized the missions, starting in 1834, the Mexican governors of California began making large rancho grants of former mission lands to Mexican citizens, particularly to soldiers and members of prominent families who had financed various government initiatives. The Project Area is situated within Rancho Cañada de Capay, a roughly 40,000-acre Mexican land grant dating to 1846. Bureau of Land Management, General Land Office records indicate the area that comprises Rancho Cañada de Capay was surveyed by the U.S. government in 1857 and a patent for this land was issued to Jasper O'Farrell in 1865 (DeOliveira and Allan, 2021).

American Period (1848 to the Present). California became part of the United States as a consequence of the 1846–1847 Mexican War and was admitted as a state in 1850. The Gold Rush transformed Yolo County from an isolated farming community to a booming agricultural region, as disenchanted miners realized they could make a greater fortune through farming and ranching rather than gold prospecting.

Regulatory Background

State

California Environmental Quality Act. The California Environmental Quality Act (CEQA) establishes that historical and archaeological resources must be afforded consideration and protection by CEQA (14 CCR Section 21083.2, 14 CCR Section 15064). CEQA Guidelines define significant cultural resources under two regulatory designations: historical resources, and unique archaeological resources.

A historical resource is a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR;" or "a resource listed in a local register of historical resources or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code;" or "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, provided the agency's determination is supported by substantial evidence in light of the whole record" (14 CCR Section 15064.5[a][3]).

An archaeological artifact, object, or site can meet CEQA's definition of a unique archaeological resource even if it does not qualify as a historical resource (PRC 21083.2[g]; 14 CCR 15064.5[c][3]).

Local

County of Yolo

Action CO-A63 of the Conservation and Open Space Element of the Yolo County 2030 General Plan (Yolo County, 2009) requires cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, it requires a mitigation plan to protect the resource before the issuance of permits. Mitigation may include:

- Having a qualified archaeologist present during initial grading or trenching;
- Redesign of the project to avoid historic resources;
- Capping the site with a layer of fill; and/or
- Excavation and removal of the historical resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)

5.5.2 Environmental Impacts and Mitigation Measures

a. Would the project cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5 [§15064.5 generally defines* historical resource *under CEQA]?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The record search and intensive pedestrian survey did not identify any known historical resources in the Project Area. However, ground disturbing activity, such as grading, trenching, or excavations, has the potential to impact unknown buried resources that may be considered significant under CEQA. Implementation of Mitigation Measures (MMs) CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown resources to a less than significant level.

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

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The record search and intensive pedestrian survey did not identify any known archaeological resources in the Project Area. However, ground-disturbing activity, such as grading, trenching, or excavations, has the potential to impact unknown buried resources that may be considered a unique archaeological resource per CEQA. Implementation of MMs CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown resources to a less than significant level.

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

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. No known human remains, or informal, undocumented cemeteries were identified within the Project area as a result of the record search, archival research, NAHC Sacred Lands File Search, or intensive pedestrian survey. In the unlikely event unknown buried human remains are encountered during ground disturbing activity, the implementation of MMs CUL-1, CUL-2, and CUL-3 would reduce potential impacts to a less than significant level.

Mitigation Measures

MM CUL-1 Worker Environmental Awareness Program. Prior to the initiation of construction, all construction personnel shall be trained by a qualified archaeologist meeting federal criteria under

36 CFR 61 regarding the recognition of possible buried cultural resources (i.e., prehistoric and/or historical artifacts, objects, or features) and protection of all archaeological resources during construction. Training shall inform all construction personnel of the procedures to be followed upon the discovery of cultural materials. All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of State law. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend the Workers' Environmental Awareness Program, so they are aware of the potential for inadvertently exposing buried archaeological deposits.

MM CUL-2 **Inadvertent Discovery of Historical Resources, Unique Archaeological Resources or Tribal Cultural Resources.** If previously unidentified cultural resources are uncovered during construction activities, construction work within 50 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist assesses the significance of the resource. The archaeologist, in consultation with the County, the Yocha Dehe Wintun Nation, and any other responsible public agency, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the find(s) is found to be eligible to the National or California Registers, qualify as a unique archaeological resource under CEQA (PRC §21083.2), or is determined to be tribal cultural resource as defined in PRC §21074.

MM CUL-3 **Treatment of Human Remains.** All human remains discovered are to be treated with respect and dignity. Upon discovery of human remains, all work within 50 feet of the discovery area must cease immediately, nothing is to be disturbed, and the area must be secured. The County Coroner's Office must be called. The Coroner has 2 working days to examine the remains after notification. The appropriate land manager/owner of the site is to be called and informed of the discovery. It is very important that the suspected remains, and the area around them, are undisturbed and the proper authorities called to the scene as soon as possible, because it could be a crime scene. The Coroner would determine if the remains are archaeological/ historic or of modern origin and if there are any criminal or jurisdictional questions.

After the Coroner has determined that the remains are archaeological/historic-era, the Coroner would make recommendations concerning the treatment and disposition of the remains to the person responsible for the excavation, or to his or her authorized representative. If the Coroner believes the remains to be those of a Native American, he/she shall contact the Native American Heritage Commission (NAHC) by telephone within 24 hours.

The NAHC would immediately notify the person it believes to be the most likely descendant (MLD) of the remains. The MLD has 48 hours from the time given to access the site to make recommendations to the landowner for treatment or disposition of the human remains. If the descendant does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from further disturbance. If the landowner does not accept the descendant's recommendations, the owner or the descendant may request mediation by NAHC.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

Cultural Resources Impact Conclusions

The record search and intensive pedestrian survey did not identify any known historical resources in the Project Area. However, ground disturbing activity, such as grading, trenching, or excavations, has the potential to impact unknown buried resources that may be considered a unique archaeological resource per CEQA. Implementation of MM CUL-1, MM CUL-2, and MM CUL-3 would reduce impacts to unknown resources to a less-than-significant level.

5.6 Energy

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.6.1 Setting

Power is generated in Yolo County from a variety of sources including fossil fuels, natural gas fields, hydroelectric facilities, solar energy, hydrogen fuels, and biofuels. Natural gas is actively produced from 25 gas fields located over the entire County, and there is also a storage area known to hold a maximum capacity of 3.25 billion cubic feet of natural gas. The Yolo County Flood Control and Water Conservation District operates two hydroelectric plants in Lake County, with a combined capacity of 4,750 kilowatts. The County also hosts two waste-to-energy facilities that operate on biofuels such as agricultural and wood wastes as well as landfill gas.

The proposed Project is within the Pacific Gas and Electric (PG&E) service area and will generate 20 megawatts of alternating current (MWac) of renewable electrical energy. The electricity generated by the solar photovoltaic (PV) field will be used in part for charging batteries, and the remaining energy generated will be delivered to the grid. Yolo County has a community choice aggregator (CCA) program that will allow Valley Clean Energy (the CCA) to purchase the electricity from this solar PV field and distribute it through PG&E lines to customers in Yolo County. Electricity generated by the project will be interconnected to the PG&E electrical distribution system by connecting to an existing PG&E 21-kilovolt (kV) distribution line located about 2,400 feet south of the project site.

Regulatory Background

State

Senate Bill 100 (SB 100) calls for 100 percent of all electricity sold in California to be generated from renewable sources by the year 2045.

Assembly Bill 32 (AB 32) calls for greenhouse gas (GHG) reduction strategies that include a reduction mandate to 1990 levels by 2020.

Executive Order B-30-15 established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030, to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050.

Local

Yolo County General Plan

The following policies are presented in the Yolo County General Plan, Conservation and Open Space Element (Yolo County, 2009a):

Policy CO-7.3 Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.

Policy CO-7.9 Require that new site and structure designs maximize energy efficiency.

The following policies are presented in the Yolo County General Plan, Land Use and Community Character Element (Yolo County, 2009b):

Policy CC-4.1 Reduce dependence upon fossil fuels, extracted underground metals, minerals and other non-renewable resources by:

- Requiring projects to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.
- Encouraging projects to use regenerative energy heating and cooling source alternatives to fossil fuels.
- Encouraging projects to select building materials that require less energy-intensive production methods and long-distance transport, in compliance with Leadership in Energy and Environmental Design (LEED) or equivalent standards.

Policy CC-4.12 Require "green" design, construction and operation including:

- Site planning sensitive to the natural environment.
- Efficiency in resource use (including energy, water, raw materials and land).
- Building reuse and adaptive reuse.
- Selection of materials and products based on their life-cycle environmental impacts.
- Use of materials and products with recycled content.
- Use of materials provided from within the region.
- Recycling of construction and demolition waste.
- Reduction in the use of toxic and harmful substances in the manufacturing of materials and during construction.
- Use of passive and active solar strategies and efficient heating and cooling technologies.
- Reduction in water use for buildings and landscaping.
- Light pollution reduction to protect "dark skies."
- Improvements to interior and exterior environments leading to increased health, comfort and productivity.
- Facility maintenance and operational practices that reduce or eliminate harmful effects on people and the natural environment during occupancy.
- Water reuse systems
- Other systems to capture energy sources that would otherwise be wasted.

The following policies are presented in the Yolo County General Plan, Public Facilities and Services Element (Yolo County, 2009c):

Policy PF-10.1 Pursuant to AB 117 (Statutes of 2002) explore "community choice aggregation" as a means of facilitating the purchase of electrical energy at the local level for community needs.

Policy PF-10.2 Streamline the permitting process for the production of energy alternatives (including but not limited to photovoltaic, solar, wind, biofuels, and biomass), to reduce dependency on fossil fuels.

Policy PF-10.3 Provide financial and regulatory incentives for the installation of alternative energy and alternative energy conservation measures in all development approvals.

Policy PF-11.1 Encourage the development of power generating and transmission facilities in appropriate alignments and locations, sufficient to serve existing and planned land uses.

Policy PF-11.5 Increase the availability and reliability of power to the rural areas, including underserved communities.

Yolo County Climate Action Plan

The Yolo County Climate Action Plan (CAP) establishes a goal to reduce 2008 emissions back to the 1990 estimated levels. It establishes 15 programs to achieve this target. Among them is to increase the use of renewable energy generation.

Valley Clean Energy

Valley Clean Energy Alliance (VCE), formed in June 2018, is the CCA Joint Powers Authority that procures energy for customers in the cities of Davis, Winters, Woodland, and unincorporated Yolo County. Like all CCAs, VCE is an "opt out" program. Residents and businesses within its service area are automatically enrolled in VCE but have the option to opt out of the program and return to PG&E for generation service at any time. The power provided by VCE is delivered with a PG&E distribution system, which customers pay for. VCE is able to pool the electricity demands of its service area, purchase power from local renewable energy sources, and resell that electricity within its service area. It is VCE's intent to purchase more electricity from clean energy sources than PG&E at prices that remain at or below PG&E's rates.

5.6.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. The Project consists of construction and operation of a solar energy facility. Construction/decommissioning of the Project would result in the consumption of fossil fuels for the transportation of workers to and from the site, and for the delivery of materials and equipment. Hence, construction/decommissioning would not result in wasteful, inefficient, or unnecessary consumption of energy sources. Operation would result in the generation of 20 MWac of electricity to support the electrical demands of the region by supplying power to VCE.

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

NO IMPACT. Development and operation of the Project would support both County and State policies for the reduction of GHG and the use of renewable energy. The proposed Project is consistent with policies PF-10.1, CO-7.9, CC-4.1 and CC-4.12 in the Public Facilities and Services Element, Conservation and Open Space Element, and the Land Use and Community Character Element of the Yolo County General Plan. The Project is also consistent with California renewable energy goals, including SB 100 calling for all electrical generation to be from renewable sources; AB 32 which calls for GHG reduction strategies; and Executive Order B-30-15, which established a new interim statewide GHG emission reduction target.

Energy Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.7 Geology and Soils

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

*Geology and Soils question (d) reflects the current 2016 California Building Code (CBC), which is based on the International Building Code (2015), effective January 1, 2017. The CBC is updated every 3 years.
Significance criteria established by CEQA Guidelines, Appendix G.

5.7.1 Setting

Geologic Setting

Approximately 70 percent of the eastern portion of Yolo County is located in the Great Valley geomorphic province of California and consists of gently sloping to level alluvial plains. The remaining portion of the County is in the Coast Range geomorphic province. The proposed Project falls within the Great Valley geomorphic province. Geologic units in the Great Valley area generally consist of Quaternary alluvium or basin deposits, and the Quaternary Modesto and Riverbank formations, both of which consist of some-what older alluvium (LSA Associates, 2009).

Soils

Yolo County hosts an array of soil types that benefit the widespread agriculture throughout the County. Soils within the proposed Project area reflect the underlying rock type, the extent of weather of the rock, the degree of slope, and the degree of human modification. A custom soils report was completed as part of the application materials submitted to the Countyfor this Project. The soils report consisted of a web soil survey through the Natural Resources Conservation Service (NRCS) and included the Project site (UC Davis NRCS, 2021).

As noted in the Project Description, most excavation activities would be less than 6 feet deep; however, some excavations, such as those for the installation of electricity collector poles, may reach depths of approximately 8 feet, depending on site-specific soil conditions. In addition, concrete pillar foundations will be required for the Battery Storage containers, and medium voltage turnkey solution containers will house inverters, transformers, and other electrical equipment. The depth of these pillar foundations will depend on the result of site-specific geotechnical studies. Off-site, should the gen-tie line be located above-ground, approximately 10 treated wood poles would be required and would require holes 20 to 30 feet deep. Should the gen-tie line be undergrounded, it would be installed using horizontal directional drilling at depths that would minimize impacts to the existing tree roots.

Slope Stability

Landsliding is the natural process of relatively rapid downslope movement of soil, rock, and rock debris as a mass. The potential for and rate of landsliding is affected by the type and extent of vegetation, slope angle, degree of water saturation, strength of the rocks, and the mass and thickness of the deposit. Some of the natural causes of slope instability are earthquakes, weak materials, stream and coastal erosion, and heavy rainfall. In addition, certain human activities tend to make the earth materials less stable and increase the chance of ground failure. The Project area is located on relatively flat agricultural land that is bordered by agricultural land to the north, west, east, and south. The Project area is located within an area of low landslide susceptibility. Furthermore, the soils in the Project area range from a normal- to moderate-level of expansiveness (Yolo County, 2021).

Seismicity

While Yolo County has a low probability for earthquake hazards compared to the rest of California, it would be subject to seismic hazards from earthquakes on faults both within and near the County; and thus, there is a risk of damage to structures and property as a result. The April 1892 Vacaville-Winters earthquake caused severe damage to Winters and was believed to have originated from a segment of a complex zone of blind thrust faults that lie to the south in Solano County on the western side of the lower Sacramento Valley (County of Yolo, 2009b). Future earthquake activity could affect the Project site with ground shaking and subsequent landslides.

Earthquakes on the major faults of the Coast Ranges and the Sierra Nevada foothills could produce ground-shaking that could affect Yolo County residents (Yolo County, 2009a). Major faults in the Coast Ranges include several faults of the Great Valley thrust system, the Hunting Creek-Berryessa fault, the Green Valley fault, the West Napa fault, and the Hayward-Rodger Creek fault zone. The Foothills fault system is located along the eastern edge of the Sacramento Valley in the Sierra Nevada foothills (USGS, 2021).

Faults closest to the Project site include the active Hunting Creek-Berryessa fault system, the potentially active Dunnigan Hills Fault, and several segments of the Great Valley thrust fault system. The Hunting Creek-Berryessa fault system, classified as an Alquist-Priolo Earthquake Fault Zone, is located approxi-mately 23 miles west of the Project site. The Dunnigan Fault is located approximately 8 miles east of the Project site and is considered potentially active, but not considered by the California Geological Survey (CGS) as likely to generate surface rupture (LSA Associates, 2009). The Great Valley Thrust system faults are located along the western edge of the valley and are blind thrusts that do not reach the surface.

Paleontology

A paleontological records search was conducted for this Project from the records of the University of California Museum of Paleontology. The closest fossil locality found was in Pleistocene sediments 12 miles

southeast of the Project. The locality is in the Modesto Formation and produced seven mammal fossils and one reptile fossil (Finger, 2021).

Regulatory Background

Federal

Clean Water Act. The Clean Water Act (CWA) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of waters of the U.S. (WOUS). The CWA established the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point-source discharges of pollutants into WOUS for construction activities that disturb one or more acres. The NPDES Program is a federal program that has been delegated to the State of California for implementation through the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB). The SWRCB and RWQCBs grant NPDES permits and set waste discharge requirements for stormwater runoff from construction sites through NPDES Construction General Permits. The Construction General Permit requires the implementation of a Storm Water Pollution Prevention Plan (SWPPP), which specify best management practices (BMPs) and other measures designed to avoid or eliminate pollution discharges into waters of the U.S.

State

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act was passed following the 1971 San Fernando earthquake. The act regulates development in California near known active faults due to hazards associated with surface fault ruptures. Alquist-Priolo maps are distributed to affected cities, counties, and state agencies for their use in planning and controlling new construction. Areas within an Alquist-Priolo Earthquake Fault Zone require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act (SHMA) was passed in 1990 following the 1989 Loma Prieta earthquake. The SHMA directs the California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake induced landslides, and amplified ground shaking. CGS has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, landslides, and ground shaking. The SHMA requires that agencies only approve projects in seismic hazard zones following site-specific geotechnical investigations to determine if the seismic hazard is present and identify measures to reduce earthquake-related hazards.

California Building Code. The California Building Code (CBC) prescribes standards for constructing safer buildings. The CBC contains provisions for earthquake safety based on factors including occupancy type, soil and rock profile, ground strength, and distance to seismic sources. The CBC requires that a site-specific geotechnical investigation report be prepared for most development projects to evaluate seismic and geologic conditions, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. The CBC is updated every 3 years and is based on the International Building Code; the current version is the 2019 CBC.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) provides protection for paleontological resources through environmental legislation. Direction regarding significant impacts on paleontological resources is found in Appendix G of the CEQA Guidelines. Per section 5097.5 of the Public Resources Code, removing paleontological remains without authorization is unlawful and can result in a misdemeanor. In addition, Section 622.5 of the California Penal Code confirms that damage or removal of paleontological resources is a misdemeanor.

Local

County of Yolo. Action CO-A63 of the Conservation and Open Space Element of the Yolo County 2030 General Plan (Yolo County, 2009a) requires cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, it requires a mitigation plan to protect the resource before the issuance of permits. Mitigation may include:

- Having a qualified paleontologist present during initial grading or trenching;
- Redesign of the project to avoid paleontological resources;
- Capping the site with a layer of fill; and/or
- Excavation and removal of the paleontological resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)

Action CO-A65 of the Conservation and Open Space Element requires that when paleontological artifacts are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance.

The Health and Safety Element of the Yolo County 2030 General Plan contains the following policies relevant to geological resources (Yolo County, 2009b).

Policy HS-1.1 Regulate land development to avoid unreasonable exposure to geologic hazards.

Policy HS-1.2 All development and construction proposals shall be reviewed by the County to ensure conformance to applicable building standards.

Policy HS-1.3 Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.

Professional Standards

The Society of Vertebrate Paleontology (SVP) is an international professional organization of vertebrate paleontologists. It has issued guidelines for adequate assessment and mitigation of adverse impact topaleontological resources. Fossils must be identifiable and must be at least 5,000 years old to be considered significant paleontological resources.

5.7.2 Environmental Impacts and Mitigation Measures

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

LESS THAN SIGNIFICANT IMPACT. The proposed Project is not crossed by any known faults and is not in an Alquist-Priolo Earthquake Fault Zone (CGS, 2021). The closest active fault, the Hunting Creek-Berryessa fault system, is located approximately 23 miles west of the Project site. Construction of the solar Project would comply with all applicable UBC/CBC requirements and would be engineered to withstand earthquakes

that may occur in this area. Final Project design would incorporate any design recommendations from a site-specific geotechnical investigation.

ii) Strong seismic ground shaking?

LESS THAN SIGNIFICANT IMPACT. Potential earthquake damage on the Project site would likely occur as a result of ground shaking and seismically related structural failures. The degree of this type of hazard is controlled by the nature of the underlying soil and rock materials, the magnitude of and distance from the quake, the duration of ground motion, and the physical characteristics of the affected structure. Seismically induced shaking would be expected to occur during a major event, but damage would be no more severe in the Project area than elsewhere in the region. The proposed PV system would be built in accordance with CBC requirements to mitigate potential impacts and ensure they would be less than significant to people who may happen to be in or around the system during a seismic event. The geological investigation required for permitting would provide sufficient engineering information for the footing/foundations of the containers and panels to be sufficient and survive strong seismic ground shaking with minimal damage. Therefore, potential impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

LESS THAN SIGNIFICANT IMPACT. The Project site is flat and would not experience seismically induced landslides or slope failures. No map of liquefaction hazard has been prepared on a Countywide basis, nor has the CGS evaluated the proposed Project area for liquefaction or landslides. The site is underlain by unconsolidated Holocene sediments with groundwater levels of less than 50 feet and could potentially experience liquefaction in the event of a large regional earthquake (CDWR, 2021).

The proposed Project requires little grading and minimal placement of permanent foundations such as concrete footings for the turnkey stations and BESS containers. Design and construction of the Project would comply with all applicable CBC requirements, and final Project design would incorporate all design recommendations from the site-specific geotechnical investigation as required for construction permitting. Therefore, potential impacts would be less than significant.

iv) Landslides?

NO IMPACT. The California Department of Conservation has not evaluated the proposed Project area for landslides. However, the proposed Project location is flat and has a very low risk for landslides. Construction of the Project would not create a risk to people or structures from potential landslides.

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

LESS THAN SIGNIFICANT IMPACT. Construction activities associated with the Project include surface smoothing and minimal grading. The design and construction of the Project would be subject to construction-related stormwater permit requirements under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (State General Permit). The State General Permit requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP), which would include best management practices for stormwater quality control, including soil stabilization practices, sediment control practices, and wind erosion control practices. Therefore, the impact related to soil erosion would be less than significant.

c. Would the project be located on geologic units 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?

LESS THAN SIGNIFICANT IMPACT. The Project is not located in an area of unstable geologic materials. Furthermore, the Project is not expected to significantly affect the stability of the underlying materials, which could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The geotechnical study would provide site-specific geological information for use in designing proper foundations that would be appropriate for the soils at the site. Therefore, construction, operation, and maintenance of the Project would not create a significant risk to people or structures from an unstable geologic unit or unstable soil.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

LESS THAN SIGNIFICANT IMPACT. According to the Custom Soil Resource Report for Yolo County, prepared by the NRCS, the soils associated within the Project disturbance area include the following: Brentwood silty clay loam (BrA), Capy silty clay (Ca), Marvin silty clay loam (Mf), Yolo silt loam (Ya). These soils are classified by the U.S. Department of Agriculture as having low to moderate expansion potential (Yolo County, 2021). As part of the building permit process, the Project would be constructed in accordance with CBC requirements, and the site-specific geotechnical investigation.

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 waste water?

NO IMPACT. There are no sewers or onsite wastewater treatment systems (OWTS) installed or built on the property. Additionally, because workers will not be present on a daily basis, there is no plan or need for sewer or OWTS. Therefore, there are no expected impacts.

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

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. A paleontological records search was conducted for this Project from the records of the University of California Museum of Paleontology (UCMP). The closest fossil locality found was in Pleistocene sediments 12 miles southeast of the Project. The locality is in the Modesto Formation and produced seven mammal fossils and one reptile fossil. It was determined that a pedestrian survey was not necessary, as the Project footprint consists of disturbed agricultural land and is part of a different formation than where the discovery was made. The geologic mapping of the Project area shows three geologic units mapped within the Project site: Holocene alluvium (Qa); Holocene basin deposits, undivided (Qb); and Modesto Formation, upper member (Pleistocene). Because the natural surface of the site are of Holocene age, and no excavations are expected to reach Pleistocene sediments, impacts to paleontological resources are expected to be minimal. Implementation of Mitigation Measure PAL-1 would reduce risks to less than significant if unexpected paleontological resources are encountered during Project construction.

Mitigation Measure

PAL-1 **Inadvertent Paleontological Find.** Although highly unlikely, should any significant paleontological resources (e.g., bones, teeth) be unearthed, construction activities should be diverted at least 15 feet from the find until a professional paleontologist has assessed the find and, if

deemed significant, salvaged it in a timely manner. Collected fossils should be deposited in an appropriate repository, such as the University of California Museum of Paleontology (UCMP), where they will be properly curated and made available for future research.

Geology and Soils Impact Conclusions

Although there are no known geological conditions that would result in substantial adverse effects including the risk of loss, injury, or death involving strong seismic ground shaking, liquefaction, expansion of soils, or other unstable soil conditions, the site-specific geotechnical investigation would provide the design engineers with site-specific geotechnical information that would allow proper design so that the facility would be able to withstand any such adverse conditions. The potential for any soil erosion would be addressed through preparation of a Construction SWPPP, which would also be applicable to decommissioning activities. The closest known paleontological resources in the vicinity are about 12 miles from the site. Mitigation Measure PAL-1 has been provided should paleontological resources be inadvertently found. With implementation of the mitigation measure, the impacts to Geology and Soils would be less than significant.

5.8 Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.8.1 Setting

The global climate depends on the presence of naturally occurring greenhouse gas (GHG) to provide what is commonly known as the "greenhouse effect" that allows heat radiated from the Earth's surface to warm the atmosphere. The greenhouse effect is driven mainly by water vapor, aerosols, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other constituents. Globally, the presence of GHG affects temperatures, precipitation, sea levels, ocean currents, wind patterns, and storm activity. Human activity directly contributes to emissions of the anthropogenic GHGs, including CO_2, primarily from the use of fossil fuels as a source of energy.

Effects of GHG Emissions. Changing temperatures, precipitation, sea levels, ocean currents, wind patterns, and storm activity provide indicators and evidence of the effects of climate change. From 1950 onward, relatively comprehensive data sets of observations are available. Research by California's Office of Environmental Health Hazard Assessment (OEHHA) documents climate change indicators by categorizing the effects as: changes in California's climate; impacts to physical systems including oceans, lakes, rivers, and snowpack; and impacts to biological systems including humans, vegetation, and wildlife. The primary observed changes in California's climate include increased annual average air temperatures, more-frequent extremely hot days and nights, and increased severity of drought. Impacts to physical systems affected by warming temperatures and changing precipitation patterns show decreasing snowmelt runoff, shrinking glaciers, and rising sea levels. Impacts to terrestrial, marine, and freshwater biological systems, with resulting changes in habitat, agriculture, and food supply are occurring in conjunction with the potential to impact human well-being (OEHHA, 2018).

California GHG Emissions Trends. California first formalized a strategy to achieve GHG reductions in 2008, when California produced approximately 484 million metric tons of CO_2 equivalent (MMTCO2e) according to the official Air Resources Board (ARB) inventory (ARB, 2020). The State's economy-wide emissions have been declining in recent years. California's sources of GHG emitted approximately 425 MMTCO2e in 2018 (ARB, 2020), less than 10 percent of the U.S. GHG emissions total for 2019 of 6,577 MMTCO2e.

Regulatory Background

State

California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)]. The California Global Warming Solutions Act of 2006 (AB 32) required that California's GHG emissions be reduced to 1990 levels by 2020. The ARB Climate Change Scoping Plan, initially approved December 2008 (ARB, 2008) and most-recently updated by ARB in December 2017, provides the framework for achieving California's goals (ARB, 2017).

In passing AB 32, the California Legislature found that:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine eco-systems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

Other major Executive Orders, legislation, and regulations adopted for the purpose of reducing GHG emissions support the implementation of AB 32 and California's climate goals, as described below.

California Governor's Executive Orders on GHG Emissions. In September 2018, Executive Order B-55-18 established a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The ARB was directed to develop the framework for implementing the goal of carbon neutrality. Executive Order B-30-15 (April 2015) established a California GHG reduction target of 40 percent below 1990 levels by 2030. One purpose of the 2030 target is to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05, June 2005). Senate Bill 32 (SB 32) of 2016 codified the GHG emissions target to 40 percent below the 1990 level by 2030.

California Renewables Portfolio Standard (RPS) Program. Electric utilities in California must procure a minimum quantity of the sales from eligible renewable energy resources as specified by RPS requirements. To integrate renewable generators on the grid, optimize the delivery of growing amounts of renewable energy production, and facilitate achieving the targeted GHG reductions, the California legislature has also authorized energy agencies to establish energy storage procurement targets.

The Clean Energy and Pollution Reduction Act of 2015 [Senate Bill 350 (SB 350)] established California's state policy objectives on long-term energy planning and procurement as signed into law on October 7, 2015. The 100 Percent Clean Energy Act of 2018 [Senate Bill 100 (SB 100)] revised the RPS targets to establish the policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

Local

Yolo County General Plan

The 2030 Yolo Countywide General Plan and accompanying Climate Action Plan (CAP) include numerous policies and measures to reduce fossil fuel reliance and greenhouse gas emissions through County Actions to promote use of solar photovoltaic systems for existing and new electricity supplies, and also to pursue an electricity supply from renewable resources in excess of the RPS. (Yolo County, 2009 and 2011). The Final Environmental Impact Report (EIR) for the 2030 Yolo Countywide General Plan concluded that while the severity of GHG and climate change impacts related to planned urban growth could be reduced by some policies and some available mitigation measures, the overall impact could not be reduced to a less than significant level. The General Plan EIR identified GHG and global climate change as significant and unavoidable impacts that would result from implementation of the General Plan due to associated increases in GHG emissions.

The General Plan Amendment #2011-02 implements the Climate Action Plan and establishes the policy that GHG emissions from projects that are: consistent with the General Plan, fall within the assumptions of the General Plan EIR, and consistent with the CAP, may be found to cause less than significant impacts.

Yolo County Climate Action Plan

The Yolo County CAP identifies strategies to reduce GHG emissions and combat climate change across five sectors including: Agriculture, Transportation and Land Use, Energy, Solid Waste and Wastewater, and Adaptation. To reduce the GHG emissions related to electricity use, the CAP calls for pursuing a community choice aggregation (CCA) program to ensure that the renewable energy and zero-carbon content of the electricity supplied to customers meets the goals of the CAP as well as mandatory RPS targets.

The proposed Project has a Power Purchase Agreement (PPA) with Valley Clean Energy (VCE), the local CCA public agency that supplies renewable energy to customers in the cities of Winters, Woodland, Davis, and unincorporated Yolo County.

5.8.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. The proposed Project would cause GHG emissions due to construction activities and during operation. Operation of the solar generating station would produce electricity from renewable energy resources that would displace the need to produce electricity from conventional (fossil-fueled) resources. The GHG emissions caused by development activities including construction and operations with maintenance and inspection would occur in conjunction with the indirect GHG emissions reductions due to the electricity produced from renewable energy.

Construction, operations, and eventual decommissioning activities would cause GHG emissions as a result of fossil-fuel combustion in the engines of construction equipment and the vehicles carrying construction materials and workers to and from the site. Diesel fuel or gasoline is used in mobilizing the heavy-duty construction equipment, site development and preparation, facility construction, and roadway construction, and eventual decommissioning. Total GHG emissions over the duration of construction would amount to 1,121 MTCO2e. Upon completing construction, the facility would be remotely operated, controlled, and monitored using SCADA, with occasional site visits for O&M activities of the PV equipment such as site security and other upkeep activities. The PV maintenance would be performed by three, part-time staff and therefore contribute a minor amount to annually recurring emissions. In addition, additional travel would be required for intermittent onsite sheep grazing and for apiary uses. These intermittent activities would not significantly increase GHG emissions.

Operation would provide 20 MWac of renewable generating capacity. The renewable power produced by the proposed Project would displace power produced by carbon-based fuels that would otherwise be used to meet electricity demand. The power displaced would be the incremental power provided by generators elsewhere on the grid, typically from natural gas power plants. Because the energy dispatched from the Gibson Solar Farm and energy storage system would be delivered to the PG&E system for end-use customers in Yolo County, the renewable energy produced by the Project would provide indirect GHG emissions reductions by avoiding the need to procure energy from conventional sources.[1] The overall

[1] Production of electricity for a solar facility of 20 MW capacity, with a 20 percent capacity factor, would be approximately 35,040 MWh annually (8,760 hours x 20 MW x 0.2 cap factor). The emissions intensity of the electricity

effect of the proposed Project would be to reduce GHG emissions, and therefore, this impact would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. The proposed Project would produce electricity in a manner that improves California's supply of renewable energy for end-use customers and contributes to achieving statewide renewable energy goals. Electricity from the proposed solar generating facility would be used to serve the needs of California's customers and would facilitate compliance with California's RPS. By increasing the supply of renewable energy, the Project would be consistent with the Yolo County CAP.

The renewable energy targets in the RPS support California's overall approach to achieving GHG reduction goals. The California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 32 (SB 32) of 2016 codified the GHG emissions target to 40 percent below the 1990 level by 2030. Subsequently, California's Clean Energy and Pollution Reduction Act of 2015 [Senate Bill 350 (SB 350)], SB 350 set ambitious 2030 targets for energy efficiency and renewable electricity, among other actions aimed at reducing GHG emissions across the energy and transportation sectors. The current RPS was signed into law in September 2018 with Senate Bill 100 (SB 100), which established the goals of 50 percent renewable energy resources by 2026 and 60 percent renewable energy resources by 2030. SB 100 also sets a target for California to achieve a GHG-free energy supply by December 31, 2045.

The electricity produced by the proposed Project would contribute to achieving ongoing GHG reductions in California's power supply. Other activities related to construction/decommissioning and operation of the proposed Project would either be exempt from or would be required to comply with ARB rules and regulations to reduce GHG emissions. Because the proposed Project would use renewable energy resources to produce electricity, it would be consistent with, and would not conflict with, the California's GHG emissions reduction targets and the Climate Change Scoping Plan that relies on achieving the RPS targets.

Greenhouse Gas Emissions Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

supply that is displaced varies over time but is likely to exceed 0.19 MTCO2e/MWh (Tables 2 and 6 of *2018 Integrated Energy Policy Report Update*; CEC, 2018); this results in over 6,600 MTCO2e displaced annually.

5.9 Hazards and Hazardous Materials

HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.9.1 Setting

This section addresses issues related to environmental hazards and hazardous materials in the existing environment. Environmental hazards include accidental spills of hazardous materials, the presence of existing subsurface contamination, the risk of wildfire, and aircraft safety. Hazardous materials include fuel, oil, and lubricants. If encountered, contaminated soil can pose a health and safety threat to workers or the public.

Existing and past land use activities are commonly used as indicators of sites or areas where hazardous material storage and use may have occurred or where potential environmental contamination may exist. The Project site consists of disturbed land historically used for agricultural production; the site recently contained cultivated alfalfa, wheat, and tomatoes, as well as semiagricultural land and land incidental to agricultural activities. Current and former agricultural properties commonly have herbicide, pesticide, and/or fumigant soil contamination.

Electromagnetic Fields

Electric voltage and electric current from transmission lines create electromagnetic fields (EMF). Possible health effects associated with exposure to EMF have been the subject of scientific investigation since the 1970s, and there continues to be public concern about the health effects of EMF exposure. However, EMF is not addressed here as an environmental impact under CEQA. The CPUC has repeatedly recognized that EMF is not an environmental impact to be analyzed in the context of CEQA because (1) there is no agreement

among scientists that EMF does create a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risks from EMF.

Regulatory Background

Hazardous substances are defined by federal and State regulations that aim to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14), and also in the California Code of Regulations (CCR), Title 22, Chapter 11, Article 2, Section 66261, which provides the following definition:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.*

For this analysis, soil that is excavated from a site containing hazardous materials would be considered to be a hazardous waste if it exceeded specific CCR Title 22 criteria, or criteria defined in CERCLA or other relevant federal regulations. Remediation (cleanup and safe removal/disposal) of hazardous wastes found at a site is required if excavation of these materials occurs; it may also be required if certain other activities occur. Even if soils or groundwater at a contaminated site do not have the characteristics required to be defined as hazardous wastes, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking lead jurisdiction.

Federal. The federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. Environmental Protection Agency (USEPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

CERCLA, including the Superfund program, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List (NPL). CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

State of California. The California Environmental Protection Agency (Cal/EPA) was created in 1991, which unified California's environmental authority in a single cabinet-level agency and brought the Air Resources Board (ARB), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), Integrated Waste Management Board (IWMB), Department of Toxic Substance Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation

(DPR) under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect and enhance the environment, to ensure public health, environmental quality, and economic vitality.

The California Hazardous Waste Control Law (HWCL) is administered by Cal/EPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

5.9.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. Construction, decommissioning, and maintenance of the proposed Project would include the use and transport of hazardous materials in the form of fuels and lubricants required to operate construction vehicles and equipment. In addition to these hazardous materials, it is anticipated that small quantities of additional common hazardous materials would be used on-site during construction, decommissioning, and maintenance, including antifreeze and used coolant, latex and oil-based paint, paint thinners and other solvents, and cleaning products. Any stored materials would be required to comply with federal, state, and Yolo County Environmental Health regulations. Minor spills or releases of hazardous materials could occur due to accidental handling and/or storage during construction or decommissioning activities at the site. Potential impacts related to minor spills would be largely avoided by training construction personnel in the handling and storage of hazardous materials in compliance with California Occupational Safety and Hazards Administration (OSHA) standards, in addition to compliance with SWPPP permit requirements (the Project would be required to obtain a SWPPP permit from the Regional Water Quality Control Board). The Project, as proposed, would comply with OSHA laws and guidelines to ensure personnel health and safety. Furthermore, safety training would be conducted prior to construction to educate personnel of potential hazardous material protocols and safety issues.

When operational, the generation of solar electricity would not use or emit any large amounts of hazardous materials. Used biodegradable dielectric fluid and mineral oil from the transformers and miscellaneous electrical equipment are potentially hazardous materials. The spent oil would not be stored on-site, instead collected and delivered to a recycling company at the time it is removed from the equipment, compliant with all rules and regulations and shall be reflected in the project's conditions of approval.

The applicant is proposing to use a lithium iron phosphate (LFP) battery, which is more stable than the nickel, manganese and cobalt (EV-type batteries). The battery energy storage system (BESS) would be housed in temperature-regulated containers set on concrete pads located on the site. The electrolytes within LFP cells includes a volatile hydrocarbon-based liquid and a dissolved lithium salt. The electrolyte in LFP cells incorporated into BESS products is largely absorbed in the electrodes within the individual cells. Therefore, there is no liquid electrolyte that is freely flowing within each LFP cell that can easily leak out into the environment if the cell is damaged. Potential for electrolyte leak would be low and would result only from mechanical damage or crushing due to outside forces. The rigid aluminum exterior of each cell provides an added degree of protection, making it very difficult to mechanically damage the cells—further reducing the likelihood of a leak or spill. The battery containers would include hazardous waste containment in the case of a spill. All O&M personnel and emergency response departments will be trained on the manufacturer's emergency response guide, in the event that a release does occur, and shall be reflected in the project's conditions of approval.

Compliance with best management practices (BMPs), permit requirements, building code requirements, and all applicable rules and regulations pertaining to hazardous materials would ensure the proposed Project would have less than significant impacts pertaining to creating 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?

LESS THAN SIGNIFICANT IMPACT. Accidental spills of hazardous materials could occur due to improper handling and/or storage practices during construction activities. However, as discussed previously under checklist question a., compliance with BMPs, permit requirements, and all applicable rules and regulations pertaining to hazardous materials would ensure the proposed Project would have less than significant impacts pertaining to potential impact from the accidental release of hazardous materials into the environment.

The proposed Project would include on-site battery storage infrastructure. The BESS would be housed in temperature regulated containers set on concrete pads located on the site. The BESS would be located at the greatest distance from residential receptors within the Project site feasible for placement of the BESS. Battery containers would include hazardous waste containment in the case of a spill. Additionally, construction of foundations/concrete footings and battery containers would conform to all applicable building codes and regulations pertaining to such facilities, ensuring that the proposed Project would have less than significant impacts pertaining to creating a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

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

LESS THAN SIGNIFICANT IMPACT. The closest public school (by line-of-sight) is Madison Community High School, which is located 0.70 miles east of the nearest Project boundary. Therefore, there would be no impact to an existing or proposed school resulting from an accidental release. As discussed above under checklist question a., compliance with BMPs, permit requirements, and all applicable rules and regulations pertaining to hazardous materials would ensure the proposed Project would have less than significant impacts pertaining to accidental release of hazardous materials into the environment that could affect the nearest schools.

d. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

NO IMPACT. The proposed Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (CalEPA, 2021). Additionally, the Project is not located on a site that is included on a list of hazardous materials sites compiled by the Yolo County Environmental Health Division-Hazardous Waste Site Files pursuant to Government Code 65962.5. No impacts would occur related to the Project being located on, or disrupting, a registered hazardous material site.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?

NO IMPACT. The nearest airport to the Project site is Ale Doble Airport, located 2.5 miles southwest of the nearest Project boundary. Ala Doble Airport does not have a land use plan. Based on FAA (Federal Aviation Administration) guidelines (Advisory Circular 70/7460-1) to reduce potential hazards to air navigation, the Project does not include any facilities that would require FAA review for possible impacts to aviation safety. Therefore, there would be no potential safety impacts related to an airport land use plan or airport within 2 miles of the Project site or hazard for people residing or working in the Project area.

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

LESS THAN SIGNIFICANT IMPACT. State Route 16, adjacent to the proposed solar energy facility, is a known Yolo County Office of Emergency Services evacuation route. During construction and decommissioning, some oversize truck trips are expected to deliver large pieces of construction equipment and materials to the site, or remove materials from the site. These activities may include brief temporary delays on local roads providing access to the site. However, no roadway or lane closures are expected during construction and decommissioning. In the event deliveries require any disruption to public roadways, flagmen would be present to ensure traffic flow, including emergency vehicle flow through the area, evacuations, and access to any nearby residences or areas would not be impaired. Once operational, the proposed Project would have no impact on access or movement to emergency service providers or evacuations. Impacts would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. The Project is located on and adjacent to irrigated farmland of Yolo County, not in the arid hilly areas of the far western County where significant fire hazards exist. The proposed Project site is not located on forest or wilderness land, and the Project would not involve the construction or operation of habitable structures in wildland areas or promote development in wildland areas. According to the Department of Forestry and Fire Protection (CAL FIRE) Yolo County Fire Hazard Severity Zone Map, the Project site is located within a "Local Responsibility Area - Unincorporated" with respect to fire protection (CAL FIRE, 2021). Therefore, there would be a less than significant impact.

Hazards and Hazardous Materials Impact Conclusions

No potentially significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.10 Hydrology and Water Quality

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.10.1 Setting

Surface Water

The major watersheds and surface water features in Yolo County include Cache Creek, Putah Creek, the Sacramento River, and the Yolo Bypass. The Project is surrounded by several surface water features including South Fork Willow Slough to the north (0.5 miles), Cache Creek to the north (1.6 miles), and Cottonwood Slough to the south (1 mile). The Project site is located within the South Fork Willow Slough watershed, a tributary of Willow Slough, which drains east towards the Sacramento River (SWRCB, 2021). An additional extensive network of sloughs, irrigation canals, and drainage ditches are located throughout the County. Yolo County does not have any natural lakes.

Groundwater

The Project site is located within the Yolo Subbasin of the larger Sacramento Valley groundwater basin. The Yolo Subbasin boundaries approximately mirror the Yolo County boundaries; the Subbasin is approximately 27 miles wide from west to east and up to 45 miles long from north to south. The Subbasin is bounded on the east by the Sacramento River and the west by the Coast Ranges. Putah Creek forms the southern boundary from the southwestern corner of the Subbasin to the City of Davis, at which point the boundary follows the Yolo County line to the south (GEI Consultants, 2021). The Subbasin's northern boundary follows the Yolo County boundary. The Yolo Subbasin Groundwater Agency (YSGA), a group of

member agencies and affiliated parties, acts as the Groundwater Sustainability Agency for Yolo Subbasin under the Sustainable Groundwater Management Act (SGMA) (GEI Consultants, 2021). The Yolo Subbasin has been classified by SGMA as a "medium priority" basin and YSGA is in the process of preparing a Groundwater Sustainability Plan for the Subbasin (GEI Consultants, 2021).

Domestic and agricultural land uses rely on groundwater, in addition to surface water, to supply their water needs. Wells in the County are increasingly tapping deeper aquifers, contributing to issues of subsidence and contamination. Groundwater levels in the Yolo Subbasin vary significantly seasonally and show large declines during periods of drought but seem to fully recover after periods of normal precipitation (GEI Consultants, 2021). The primary source of groundwater recharge is applied irrigation water and rainfall. Recharge occurs naturally and through the release of stored water from the Indian Valley Reservoir into Cache Creek during low flows.

Groundwater pollution potential is evaluated on the DRASTIC index range; this method is based on factors such as **D**epth to water, net **R**echarge, **A**quifer media, **S**oil media, **T**opography, **I**mpact vadose zone, and hydraulic **C**onductivity. The proposed Project location has a medium groundwater pollution potential of 140 to 159 (Yolo County, 2009).

The California Resource Lab at University of California, Davis developed a Soil Agricultural Groundwater Banking Index (SAGBI) for groundwater recharge on agricultural land. The scale ranges from 0 (poor) to 100 (excellent) and is based on five major factors: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition. The site conditions of the Project area vary widely from the northern to the southern boundary of the parcel. From the north to the south, the area of development of the Project has the following ratings: of 16-Poor, 41-Moderately Poor, 59-Moderately Good, and 75-Good (UC Davis, 2021).

Water Quality

The quality of surface water in Yolo County varies and is likely to be diminished after major storms. Chemicals such as boron, diazinon, mercury, and unknown toxics are pollutants found in Yolo County waterways. Several of the rivers and slough in Yolo County are listed as impaired water bodies under Clean Water Act Section 303(d) and have Total Maximum Daily Loads (TMDLs) for a variety of contaminants. Water bodies in the general vicinity of the Project site with TMDLs include Lower Cache Creek and Winters Canal; however, both of these water bodies are upstream of the Project site (SWRCB, 2021).

Water quality constituents that have the potential to impact the groundwater quality of the Yolo Subbasin are arsenic, hexavalent chromium, nitrate, chloride, sodium, boron, selenium, conductivity, and total dissolved solids (TDS). In the Subbasin, arsenic, hexavalent chromium, boron, and selenium are predominantly naturally occurring. Constituents related to salinity – chloride, conductivity, sodium, and TDS – also naturally occurring but appear to be increasing due to land use factors. Elevated nitrate levels in the groundwater are predominately due to overlying land use and human activity (GEI Consultants, 2021).

Flooding

Drainage facilities in the unincorporated County are limited, often resulting in localized flooding. Runoff from agricultural land often drains to on-site ditches where water is conveyed to existing roadside ditches. Much of Yolo County is a natural floodplain, and Willow Slough is an unregulated system with small peak runoff events being common. Most of the Willow Slough watershed lies on the valley floor and is characterized by the flat areas of the slough's natural broad floodplain (Yolo County, 2014). The Gibson Solar Farm Project site will be primarily located in Zone X, an area of minimal flood hazard (FEMA, 2010). The northern most part of the Project site adjacent and parallel to State Highway 16, for a distance of

approximately 650 feet from the highway, is within Flood Hazard Zone AO (FEMA, 2021). Flood Hazard Zone AO is an area of 1 percent annual flood (100-year flood) hazard with flood depth of 1 to 3 feet with average flood depths determined; the determined average flood depth for this flood hazard zone is 1 foot (FEMA, 2010).

Historic Use

Over the past 5 years, the current landowner produced the following crops at the site and used the amount of water shown in Table 5.10-1. Based on the information in the table that average water use over that 5-year period was 4.3 AFY.

Table 5.10-1. Recent Crops and Water Use at the Site

Year	Field	Crop Type	Required Water (AFY)	Available Supply
2020	101	Alfalfa	4	Full
	102	Wheat	1	Full
2019	101	Alfalfa	4	Full
	102	Tomato	2.5	Full
2018	101	Cucumber	1	Full
	102	Sunflower	1	Full
2017	101	Corn	3.5	Full
	102	Garbanzo	1	Full
2016	101	Sunflower	1	Full
	102	Tomato	2.5	Full

Source: Gibson Solar, 2021

Regulatory Background

Federal

Clean Water Act and California's Porter-Cologne Water Quality Control Act

The Clean Water Act (CWA; 33 U.S.C. Section 1251 *et seq*.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is delegated to, and administered by, California's nine Regional Water Quality Control Boards (RWQCB). In addition, the State Water Resources Control Board (SWRCB) regulates the NPDES stormwater program. The Proposed Project is under the jurisdiction of the Central Valley Regional Water Quality Control Board and the SWRCB.

Projects that disturb one or more acres are required to obtain NPDES coverage under the California General Permit for Discharges of Storm Water Associated with Construction Activity. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes Best Management Practices (BMPs) the discharger will use to protect stormwater runoff. The SWPPP must contain a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs.

National Flood Insurance Act/Flood Disaster Protection Act

The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws led to mapping of regulatory floodplains and to local management of floodplain areas according to federal guidelines that include prohibiting or restricting development in flood hazard zones

State

State Sustainable Groundwater Management Act

The 2014 Sustainable Groundwater Management Act (SGMA) requires local public agencies and Groundwater Sustainability Agencies (GSAs) in high- and medium-priority basins to develop and implement Groundwater Sustainability Plans (GSPs) or Alternatives to GSPs. GSPs are detailed road maps for how groundwater basins will be managed to reach long-term sustainability. The Yolo Subbasin Groundwater Agency Board adopted Resolution 2018-1 in March 2018, formalizing the initiation of developing the Yolo Subbasin Groundwater Sustainability Plan (GSP). The development of the GSP has begun, but it has not been completed (GEI, 2021).

5.10.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. Construction, operation, and decommissioning of the proposed Project could risk the violation of water quality standards or waste discharge requirements from accidental release or spill of hazardous materials. Accelerated erosion and sedimentation could also occur within the Project site.

Construction of the proposed Project would require site preparation, including clearing and creation of roads, underground electrical installation, photovoltaic (PV) racks and solar panel installation, battery energy storage system (BESS) construction, and lastly construction of the new portion of distribution line (i.e., the gen-tie line). These activities could loosen the soil and lead to accelerated erosion and sedimentation during a storm event. Most excavation activities would be less than 6 feet deep; however, some excavations, such as those for the installation of electricity collector poles, may reach depths of approximately 8 feet onsite—or 20 to 30 feet deep for the poles for the gen-tie line—depending on site-specific soil conditions. However, the potential for construction of the proposed Project to result in increased erosion and sedimentation is minimal due to the existing flat topography of the proposed Project area and planting of the pollinator substrate once construction is completed. Additionally, minimal quantities of hazardous wastes will be generated over the course of construction and will be disposed of at a properly permitted and licensed treatment and/or disposal facility.

Construction activities, and to a lesser extent decommissioning activities, would include the use of heavy machinery and equipment such as trenchers, backhoes, excavators, haul vehicles, compaction equipment and water trucks. The use of this construction equipment could result in the accidental release or spill of hazardous materials, including hydraulic oil, fuel, grease, lubricants, coolant, and other petroleum-based products. If leaked or spilled, these hazardous materials could contaminate a nearby waterbody either directly or indirectly through subsequent transport by stormwater runoff. The potential for the proposed Project to result in contamination of a nearby waterbody by hazardous materials is unlikely due to the short construction period of 6 months, the minimal amount of construction equipment and associated hazardous materials to be used in construction of the proposed Project, the generally flat topography and arid climate of the region. During normal operations, no hazardous materials will be stored onsite. Decommissioning of the site will require similar equipment; however, the site will be fully reclaimed during decommissioning.

The proposed Project would disturb approximately 40 acres in total and appropriate hazardous materials control and erosion control measures (including obtaining a NPDES permit and implementing a SWPPP)

would be used throughout the decommissioning process to comply with Clean Water Act NPDES requirements. The Applicant will comply with all applicable rules and regulations pertaining to transport, storage, and use of hazardous materials, which, would further reduce the potential for water quality contamination through the accidental release or spill of hazardous materials. Compliance with applicable permits, rules, and regulations would ensure this impact would be less than significant.

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?

DURING CONSTRUCTION AND DECOMMISSIONING, LESS THAN SIGNIFICANT IMPACT. The small amount of water, approximately 8 acre-feet (AF), that would be required during construction (and perhaps less for decommissioning) of the proposed Project (used mainly for dust suppression), would be obtained from a private local groundwater well or trucked to the site through an agreement with a local agency. Construction water use would be short-term (approximately 6 months) and would be a temporary use. If available, it is likely the Project Applicant would use reclaimed water for dust suppression during construction (due to the reduced cost of readily available reclaimed water versus potable water for dust suppression). If 8 AF of construction water is obtained from a private well through an agreement with a local landowner, it is not anticipated that the temporary and small amount of water used would substantially deplete groundwater supplies or result in a lowering of the local groundwater table level. This impact would be less than significant.

DURING OPERATIONS, LESS THAN SIGNIFICANT IMPACT. Once operational, it is estimated 1.2 acre-feet/year (AFY) of water would be used annually to wash the panels. In addition, it is estimated that another 3 AF of water would be needed annually to irrigate the plant substrate during the first 3 years of the project—for a total of 4.2 AFY during the first 3 years of operation. Water for both activities would be procured first by applying to the Yolo County Flood Control and Water Conservation District (YCFC&WCD) to procure surface water. If the YCFC&WCD determines that the following year would be an "allocation year" and the County will have a limited supply of surface water, the Applicant will purchase water from other resources including private wells. If long-term water needed for panel washing (i.e., 1.2 AFY) is purchased from YCFC&WCD, the District would consider the total amount of water that is extracted annually from local groundwater supplies to evaluate if demand would substantially alter the water budget for the groundwater basin, or if it would substantially contribute to a net deficit in aquifer volume. However, anticipated water use would be far less than the historical 4.3 AFY (on average) used for crop irrigation of the existing farmland, and is, therefore, unlikely to substantially decrease groundwater supplies. While the Project would slightly increase impermeable surfaces within the site (primarily limited to foundations for PV and BESS containers), construction and operation of the proposed Project would not significantly interfere with groundwater recharge. This impact would be less than significant.

c. 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:

(i) result in substantial erosion or siltation on- or off-site;

LESS THAN SIGNIFICANT IMPACT. The proposed Project is located in a flat agricultural area that has been used for various kinds of row crops. The ground beneath the solar mounts would remain permeable and the Project is not expected to cause additional runoff. The final engineering design for the Project would include measures to reduce soil erosion around the concrete pads and solar arrays. The Project would not modify

any drainage patterns or change absorption rates, or the rate and amount of surface runoff. Any earthwork would enable water to flow in the direction of the natural drainage and would be designed to prevent ponding and erosion that could cause damage to each solar module footing. The minor earthwork as part of construction or decommissioning activities would not substantially alter the existing drainage pattern of the site or area and would not impede water flow. Erosion control measures would be implemented for exposed surfaces potentially subject to soil erosion. BMPs and adherence with all applicable permits and regulations to reduce erosion and transport of soil particles or turbid water into the drainage course flowing from the site would be employed. All conditions of existing water quality regulatory agency permits would be adhered to as well. Impacts related to erosion or siltation would be less than significant.

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

LESS THAN SIGNIFICANT IMPACT. As stated above under Items a. and c.(i), minor earthwork and grading may be required as part of construction and decommissioning activities. However, the minor grading would not result in the substantial increase in the rate or amount of surface runoff that would result in flooding on- or off-site; therefore, any impacts would be less than significant.

(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

LESS THAN SIGNIFICANT IMPACT. As stated above under Items c.(i) and c.(ii), minor grading may be required as part of construction and decommissioning activities. However, the minor grading would not create or contribute runoff water, leading to the exceedance of the capacity of existing or planned stormwater drainage systems. In addition, the minor grading would not lead to an additional source of polluted runoff. Overall, impacts would be less than significant.

(iv) impede or redirect flood flows?

LESS THAN SIGNIFICANT IMPACT. The northern end of the Project site, adjacent and parallel to State Highway 16 is located within Flood Hazard Zone AO, a zone with 1 percent annual flood (100-year flood) hazard with determined average flood depth of 1 foot. Project structures in this area consist of the perimeter chain link fence, PV modules, and a BESS/inverter equipment pad. Structures placed in areas of potential 100-year flooding with average depth of one-foot may be subject to minor flood damage; however, flood waters would be able to flow across the site without substantial impediment. The minor grading planned at the nearly level site will not alter drainage patterns across the site and would not impede water flow. Additionally, the design of Project components in this area will allow flood waters to pass with minimal damage; the chain link fence will allow water to pass through, the PV modules will be supported on steel beams or tubes that will be approximately 3 feet above the ground, and the BESS/inverter will be required to be raised above flood elevations in compliance with the County's Flood Protection Ordinance (Chapter 4, Title 8, Yolo County Code). The access roads and entry off State Highway 16, being at-grade, would require maintenance after a flood event, but would be easily repairable. Similarly, decommissioning will result in the site being restored to its pre-project condition. Therefore, impacts would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. There is no body of water in the area that could produce a tsunami or seiche. As noted above, the northern portion of the Project site is located in Flood Hazard Zone AO which is a 1 percent annual chance of flooding to a determined average flood depth of 1-foot for this area. Minimal hazardous materials will be used during project construction, decommissioning, and operation and any hazardous materials onsite will be stored, used, and disposed of per all applicable regulations. Additionally, the BESS will be required to be raised above the floodplain and the batteries will be kept in sealed

containers. Therefore, the risk of release of pollutants due to Project inundation is minimal, resulting in less than significant impacts.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

LESS THAN SIGNIFICANT IMPACT. The minor earthwork that may be required as part of the Project could result in runoff. In addition, there is a potential for spills of oil, grease, or other water contaminants associated with the use of vehicles, equipment, and materials used in construction/demolition, as well as the potential for increased erosion and sedimentation associated with soil disturbance. As stated above under Item a., Project activities would not include any discharges that could impact water quality. The Project would comply with Clean Water Act NPDES requirements and requirements specified under the required SWPPP to minimize erosion and to quickly contain and clean up any accidental spills or leaks. Also, the proposed Project must comply with all applicable rules and regulations pertaining to transport, storage, and use of hazardous materials; which would further reduce the potential for water quality contamination through the accidental release or spill of hazardous materials. This would reduce potential water quality impacts that could conflict with applicable water quality plans. As stated above under Item b., the proposed Project would not decrease groundwater supplies or interfere with groundwater recharge. The proposed Project would not conflict with or obstruct any plans or policies pertaining to groundwater management of the area. Impacts to water quality and groundwater plans would be less than significant.

Hydrology and Water Quality Impact Conclusions

Project design features and adherence to design requirements and water quality regulations minimizes potential impacts to hydrology and water quality, reducing them to less than significant with no mitigation required.

5.11 Land Use and Planning

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.11.1 Setting

Yolo County has a strong focus on protecting its agricultural and open space reserves, commodities, and identity. The County resists urbanization outside of the cities and unincorporated communities with the goal of maintaining its rural character. While the County has specific priorities for protecting agricultural lands and open spaces, and its characteristics as a rural region, it also strongly encourages solar energy development. The 2030 Countywide General Plan outlines the following strategies for the development vision for growth in the coming years:

1. Modest managed growth within specified existing unincorporated communities, where accompanied by improvements to existing infrastructure and services, as well as by suitable new infrastructure and services.
2. Opportunities for revenue-producing and job-producing agricultural, industrial and commercial growth in limited locations and along key transportation corridors.
3. Thresholds that allow for effective and efficient provision of services, consistent with rural values and expectations.
4. New emphasis on community and neighborhood design requirements that reflect “smart growth” principles and complement the character of existing developed areas.

The Project site is located on Assessor’s parcel number (APN) 049-100-035. The 147-acre parcel is flat agricultural land located in Yolo County unincorporated area, to the east of the unincorporated town of Esparto, and to the west of the unincorporated community of Madison. State Route (SR) 16 runs along the northern side of the parcel and provides access to the site. County Road (CR) 23 is located south of the parcel, but is not contiguous to it (see Figure 4-1). The parcel is designated Agriculture (AG) in the Yolo County General Plan and is zoned Agricultural Intensive (A-N).

Regulatory Background

The following relevant goal and policies are presented in the Yolo County General Plan Land Use and Community Character Element (Yolo County, 2009a):

Policy LU-1.1 Assign the following range of land use designations throughout the County, as presented in detail in Table LU-4 (Land Use Designations):

Agriculture (AG) includes the full range of cultivated agriculture, such as row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities and equestrian facilities. It also includes agri-

cultural industrial uses (e.g., agricultural research, processing and storage; supply; service; crop dusting; agricultural chemical and equipment sales; surface mining; etc.) as well as agricultural commercial uses (e.g., roadside stands, "Yolo Stores," wineries, farm-based tourism (e.g., u-pick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, ancillary restaurants and/or stores) serving rural areas. Agriculture also includes farmworker housing, surface mining, and incidental habitat.

Goal LU-2 Preserve farmland and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy. This goal is implemented through the programs noted in AG-1.14 above.

Policy LU-2.4 Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city spheres of influence. This policy is implemented through adherence to urban growth boundaries designated by Yolo County's incorporated cities, and in conjunction with LAFCO, the cities' spheres of influence.

The following relevant policies are presented in the Yolo County General Plan Public Facilities and Services Element (Yolo County, 2009b):

Goal PF-10 Sources of Energy. Provide opportunities for the development of energy alternatives.

Goal PF-11 Utilities and Communications. Support a flexible network of utility services to sustain state-of-the-art community livability and economic growth.

The following relevant principle, objective, and goals are presented in the Yolo County General Plan Vision and Principles Element (Yolo County, 2009c):

Principle 9 Fundamental changes are needed to secure the health, safety, and prosperity of our communities against the potentially adverse effects of climate change

Objective 9.6 Expanded capacity and reliance on renewable energy resources such as solar, wind, biomass, and others.

The Project site is not located within any community growth boundaries, or city spheres of influence.

Yolo Local Agency Formation Commission (LAFCO)

This commission is "a close partner in the County's agricultural preservation efforts. LAFCO's strong preservation posture, its Agricultural Conservation Policy and mitigation requirements are intended to preserve agricultural lands. These policies and requirements also serve to discourage the premature conversion of prime agricultural lands to urban uses" (Yolo County, 2009a). Although the project does not require LAFCO approval, the project is consistent with LAFCO's agricultural mitigation policies.

Yolo County Large and Very Large Solar Energy Systems Ordinance

The proposed Gibson Solar Farm Project will be reviewed under Yolo County's Very Large Solar Energy Systems Ordinance, which was adopted in 2014 and amended several times, most recently in 2020 (Yolo County, 2020). The ordinance defines a very large-sized solar energy system as "a utility-scale solar energy conversion system consisting of many ground-mounted solar arrays in rows, and associated control or conversion electronics, occupying more than 120 acres of land, and that will be used to produce utility power to off-site customers."

As permitted by the Ordinance, very large-sized solar energy systems used to produce electricity for off-site customers may be installed and operated in the Agricultural Intensive (A-N) Zone (Section 8-2.1105(d)(2)) with a major use permit, provided the systems meet all standards and requirements, described in the Ordinance. If approved, all very large-sized facilities are required to mitigate for the permanent loss of agricultural land in accordance with the County's Agricultural Conservation and Mitigation Program found in Section 8-2.404 of the County Code.

5.11.2 Environmental Impacts and Mitigation Measures

a. Would the project physically divide an established community?

NO IMPACT. The proposed solar project site is not within an established community. The town of Esparto is located approximately 1.2 miles west, and the smaller community of Madison is located approximately 0.6 miles to the east of the Project. There are field crop areas and orchards between the project site and the residential streets of Esparto and Madison. There is no direct access from the Project site to Esparto or Madison. Therefore, the Project would not divide any established community.

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?

LESS THAN SIGNIFICANT IMPACT. The proposed Project would not conflict with the applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating a land use or related environmental effect. See Section 5.6, Energy, for a list of key State and County energy policies. The development of a solar energy plant is consistent with those policies and promotes GHG emission reductions (see General Plan Principal 9, Objective 9.6; Goals PF-10 and 11; and the Yolo County Climate Action Plan (Yolo County, 2011). The Project is being proposed on land designated Agriculture (AG) in the General Plan, and is consistent with the requirements of the Large and Very Large Solar Energy Systems Ordinance discussed above. The Agriculture and Forestry Section 5.02 contains a discussion of the impact of the loss of Prime Farmland and required mitigation consistent with Yolo County's Agricultural Conservation and Mitigation Program found in Section 8-2.404 of the County Code.

Land Use and Planning Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.12 Mineral Resources

MINERAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.12.1 Setting

The California Department of Conservation (DOC) has prepared two Surface Mining and Reclamation Act (SMARA) Special Reports (#156 and #245) for Yolo County. Special Report 156 evaluated mineral resources within the Sacramento, Cache Creek, Woodland, Davis, and Fairfield areas for Portland Cement Concrete-grade construction aggregate resource potential. Special Report 245 was the first mineral land classification study of concrete aggregate resources in the newly defined Greater Sacramento Area Production-Consumption Region, including Yolo County. All lands within the 6,080 square-mile area were assigned a Mineral Resource Zone (MRZ) classification based on geologic factors alone. Those lands with a previously designated MRZ classification were updated in this report.

The Project site, located west of the community of Madison, within Yolo County, is in an area identified as MRZ-1 and MRZ-4. MRZ-1 refers to an area where available geologic information indicates that little likelihood exists for the presence of significant mineral resources. MRZ-4 refers to an area where available information is inadequate for assignment to any other MRZ category. Additionally, the Yolo County General Plan Conservation and Open Space Element emphasizes that MRZ-4 classification does not imply that there is little likelihood for the presence of mineral resources, but rather there is a lack of knowledge regarding mineral occurrence. Further exploration work could result in the reclassification of land in MRZ-4 areas to MRZ-3 or MRZ-2 categories (Yolo County, 2009). Therefore, the Project site and immediate surrounding area are not known to support significant mineral resources.

Preservation of mineral resources is addressed in the Yolo County General Plan, Conservation and Open Space Element. According to the General Plan, Yolo County has two primary mineral resources, mined aggregate and natural gas. These resources are located throughout the County; there are six aggregate mines and 25 natural gas fields currently in operation in Yolo County (Yolo County, 2009). Yolo County is one of the 28 counties in California that produce gas and oil. Most of the natural gas fields in Yolo County are located along the Yolo Bypass and the Sacramento River, with more fields located in the unincorporated area of Dunnigan Hills and at the foot of the Capay Hills (General Plan, p. CO-46).

The proposed Project is surrounded by natural gas fields including Dunnigan Hills Gas, Dufour Gas (abandoned [ABD]), Woodland Gas (ABD), Harlan Ranch Gas (ABD), Madison Gas (ABD), Fairfield Knolls Gas (ABD), Winters Gas, and Pleasant Creek Gas located within a 10-mile radius of the Project site. None of the gas fields overlap with the Project area. There are six active gas storage wells within the Pleasant Creek Gas field, operated by PG&E. The remaining wells surrounding the Project site are inactive (DOC, 2019). There are 10 aggregate mines that fall along Cache Creek within a 5-mile radius of the Project site (Table 5.12-1). Half of these mines are active, and half are inactive (DOC, 2016). None of the mines overlap with the Project area.

Table 5.12-1. Mines Located Near the Project Site

Mine No.	Mine name	Type	Distance from Project Site
91-57-0013	Cache creek aggregates	Aggregate	4.8 miles NW
91-57-0001	Cache creek aggregates	Aggregate	4.6 miles NW
91-57-0014	Capay	Aggregate	4 miles NW
91-57-0015	Cache creek off-channel mining	Aggregate	2.4 miles NW
91-57-0009	Cache creek pit	Aggregate	2.1 miles NW
91-57-0003	Reiff plant	Aggregate	2.7 miles NW
91-57-0011	Esparto-Reiff property	Aggregate	2.7 miles NW
91-57-0008	Solano concrete off-channel	Aggregate	1.3 miles NE
91-57-0007	Solano concrete, in-channel	Aggregate	1.3 miles NE
91-57-0012	Woodland properties	Aggregate	1.88 miles NE

Regulatory Background

Surface Mining and Reclamation Act. SMARA requires that the State Geologist classify land into MRZ or Scientific Zones according to the known or inferred mineral potential of the land.

MRZs are defined as the following (DOC, 2018):

> *MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.*
>
> *MRZ-2: Areas where adequate information indicates that mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic-geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.*
>
> *MRZ-3: Areas containing mineral occurrences of undetermined mineral resource significance.*
>
> *MRZ-4: Areas where available information is inadequate for assignment to any other MRZ category.*

Yolo County General Plan

The following policy is presented in the Yolo County General Plan, Conservation and Open Space Element (Yolo County, 2009):

Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

5.12.2 Environmental Impacts and Mitigation Measures

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?

NO IMPACT. The northern portion of the Project site falls in MRZ-1 and the southern portion in MRZ-4. Therefore, no known significant mineral resources are present on the site or the immediate surrounding

area. Additionally, the Project would have low-impact construction, decommissioning, and operation procedures, with no mineral extraction and would not result in the loss or availability of known resources.

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?

NO IMPACT. The Project site is not in or near a mineral resource recovery site identified in a local plan. The nearest local area plan is the Cache Creek Resources Management Plan (CCRMP), adopted by the Yolo County General Plan (CCRMP, 2019). The Project lies to the south of the area included in the CCRMP. Additionally, no gas fields or mines are located within the Project area. Therefore, the Project would not result in the loss of availability of a locally important mineral resource recovery site.

Mineral Resources Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.13 Noise

NOISE Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.13.1 Setting

Existing Conditions

Community Noise. To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is used. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that can be used to conveniently compare wide ranges of sound intensities.

Community noise levels can be highly variable from day-to-day as well as between day and night. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq) or by an average level occurring over a 24-hour day-night period (Ldn). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually 1 hour. The Ldn, or day-night average sound level, is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m. Community Noise Equivalent Level (CNEL) is another metric that is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. To easily estimate the day-night level caused by any noise source emitting steadily and continuously over 24-hours, the Ldn is 6.4 dBA higher than the source's Leq. For example, if the expected continuous noise level from equipment is 50.0 dBA Leq for every hour, the day-night noise level would be 56.4 dBA Ldn.

Community noise levels are usually closely related to the intensity of human activity. Noise levels are generally considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered adverse to public health.

Surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting sleep. At 70 dBA, sleep interference effects become considerable (USEPA, 1974).

Noise Environment in the Project Area. The existing noise environment is highly influenced by traffic noise on State Route (SR 16) running parallel to the northerly line of the site. However, given the rural nature of the area, ambient noise levels are likely quite low during the evening and overnight hours. During the daytime hours, levels are likely consistent with typical rural residential areas considering the adjacent residential communities of Esparto and Madison generate routine traffic trips, and adjacent agricultural uses also include routine noise generating activities.

Noise Sensitive Areas. The following identifies the nearest noise receptors to the project site:

- A rural residence located on SR 23 about 2,000 feet southwest of the nearest project boundary.
- Rural residences on SR 23 located between 2,000 and 2,400 feet south of the nearest project boundary.
- A rural residence on SR 23 is located about 3,200 feet southeast of the nearest project boundary.
- The residential community of Madison on SR 16 located 3,000 feet east of the nearest project boundary.
- Two rural residences on Oakdale Ranch Lane located 3,800 feet west of the nearest project boundary.

Regulatory Background

Regulating environmental noise is generally the responsibility of local governments. Yolo County has not adopted a comprehensive noise ordinance that sets specific noise levels for different zoning districts or for different land uses in the unincorporated area. Therefore, the Yolo County 2030 Countywide General Plan is used for regulatory compliance of noise generated from construction and operation of new development projects.

The recommended standards provide acceptable ranges of noise levels to assess the compatibility of land uses in terms of the Community Noise Equivalent Level (CNEL), which reflects an averaged noise level over a 24-hour or annual period.[2] "Normally acceptable" noise levels are less than 75 dBA CNEL, and up to 80 dBA CNEL would be "conditionally acceptable" for outdoor noise levels in agricultural areas (Yolo County, 2009).

In addition, the following policies are presented in the Yolo County General Plan Health and Safety Element (Yolo County, 2009):

Policy HS-7.4 For proposed new discretionary development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, greater exterior noise levels may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.

[2] The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm to 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm to 7:00 am) noise levels. The Day/Night Average Sound Level (Ldn) is essentially the same as CNEL, with the exception that the evening time period is grouped into the daytime period. (Yolo County, 2009.)

Action HS-A62 Regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise to the following sensitive receptors: residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodging; schools and day care centers; and neighborhood parks. Home occupation uses are excluded.

5.13.2 Environmental Impacts and Mitigation Measures

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?

LESS THAN SIGNIFICANT IMPACT – CONSTRUCTION AND DECOMMISSIONING. As discussed under the Regulatory Background, Yolo County does not have an adopted noise ordinance. Therefore, the Yolo County 2030 Countywide General Plan is used for regulatory compliance of noise generated from construction activities. Per the General Plan, the following is the most applicable threshold used for construction noise:

- "Normally acceptable" noise levels are less than 75 dBA CNEL, and up to 80 dBA CNEL would be "conditionally acceptable" for outdoor noise levels in agricultural areas (Yolo County, 2009).

The project applicant has indicated all noise-producing construction-related activities would occur between the hours of 8:00 a.m. to 6:00 p.m., Monday through Saturday. Therefore, because the CNEL metric used by the Yolo County General Plan adds a decibel penalty for evening and overnight hours (when construction of the proposed project would not occur), the thresholds used in this construction analysis are an hourly Leq of 75 dBA, which is considered acceptable, and an hourly Leq of 80 dBA which is considered conditionally acceptable.

Table 5.13-1 shows the maximum noise levels for typical construction equipment expected to be used during construction and decommissioning of the proposed project.

Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dBA reduction in the noise level for each doubling of distance from a single point source of noise. When lands adjacent to the noise source have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, an additional ground attenuation value of 1.5 dBA per doubling distance can be assumed (FTA, 2018). Therefore, because the proposed project is surrounded by agricultural lands, construction noise levels presented in Table 5.13-1 would attenuate 7.5 dBA for each doubling of distance.

As described earlier, the closest potential noise receptor to the project boundary is a residence located on agricultural land about 2,000 feet south or southeast. At 2,000 feet, a "worst case" instantaneous peak noise level of 88 dBA at 50 feet from the source (refer to Table 5.3-1) would attenuate to less than 50.5 dBA. This level is well below the threshold of 75 dBA hourly Leq.

Table 5.13-1. Typical Construction Equipment Maximum Noise Levels

Off-Road Equipment Type	Typical Maximum Sound Levels (dBA at 50 feet)
Flatbed Truck	88
Water Truck	88
Dump, Concrete, and Tender Trucks	88
Vibratory Post Driver	85
Crawler Tractors/Dozer	85
Tractor/Loader/Backhoe	85
Forklift/Aerial Lift/Boom	83
Air Compressor	81
Generator	78
Vibratory Plate (Concrete Vibrator)	76
Roller/Compactor	74

Source: Gibson Renewables, 2020 and FTA, 2018

Additionally, the overall average noise levels during a typical day of construction or decommissioning would be much lower. Truck trips and truck use would not be constant throughout the workday. Additionally, during construction, a pile/vibratory/rotary driving technique, like that used to install freeway guardrails, would be used to install 4- to 6-inch-diameter pipes to which the panel rack(s) would be attached. It takes 10 minutes or less to drive a pile for the solar array poles so each site would take less than 20 percent of an hour. Thus, the average hourly noise levels would be less than the peak levels shown in Table 5.13-1. Decommissioning activities would be of shorter duration and less noisy than construction activities.

Based on this analysis, construction and decommissioning noise levels from the proposed project would pose no conflict with Yolo County policies regarding compatibility of land uses adjacent to the site. The construction and decommissioning noise impact under this criterion would be less than significant.

LESS THAN SIGNIFICANT IMPACT – OPERATION AND MAINTENANCE. The proposed solar facility operations would generate continuous noise from power inverters, transformers, battery storage, and maintenance vehicles and activities (such as panel cleaning and repairs). Tracking motors on individual panels are nearly silent and are not considered in this analysis. Table 5.13-2 shows the expected maximum noise levels for proposed solar facility operating equipment that would generate continuous noise.

Table 5.13-2. Typical Solar Equipment Expected Maximum Noise Levels

Off-Road Equipment Type	Typical Maximum Sound Levels (dBA at 50 ft)	Estimated CNEL Levels (dBA at 50 ft)
Inverter	74.3	81.0
Transformer	53.1	59.8
Battery Energy Storage System	68.0	74.7

Source: Gibson Renewables, 2021; NoiseMeters, 2021

Identical to construction noise, operation noise levels presented in Table 5.13-2 would attenuate 7.5 dBA for each doubling of distance due to spread and adjacent terrain. As described earlier, the closest potential noise receptor to the project boundary is an agricultural residence about 2,000 feet south or southeast. At 2,000 feet, a "worst case" operation CNEL noise level of 81 dBA at 50 feet from the source (refer to Table 5.3-2) would attenuate to below 43.5 dBA, which is 50.2 dBA CNEL. This level is well below the County's General Plan threshold of 75 dBA CNEL.

Additionally, inverters and other on-site switchgear sources would be enclosed, significantly reducing the spread of noise. Given the distance to the nearest noise receptors to the project boundary, any noise would also likely attenuate to well below ambient conditions and would not be perceptible. Corona noise from the proposed 21-kilovolt (kV) interconnection line would be less than 40 dBA, with no receptors located proximate to the proposed interconnection route. This level is well below the County's General Plan threshold of 75 dBA CNEL.

Maintenance noise levels would primarily be caused by deliveries to and from the site. Maintenance hours are expected to be the same as construction hours and would occur between the hours of 8:00 a.m. to 6:00 p.m., Monday through Saturday. The PV facility will be maintained by up to three part-time operations and maintenance (O&M) workers, which would create an average of 6 to 10 inbound and outbound truck tips per day. This temporary and intermittent trip noise would not result in any change to the average (Leq) daytime ambient noise levels.

Maintenance, panel washing, and cleaning of installations would be expected to generate peak noise levels of approximately 76 to 80 dBA hourly Leq at 50 feet (based on the equipment shown in Table 5.13-1). Identical to construction, any noise would attenuate to well below Yolo County thresholds. Furthermore, noise generated from periodic maintenance activities would be short-term and limited in duration.

Accordingly, O&M of the proposed project would not result in exposure of persons to, or generation of noise levels in excess of, standards established in the Yolo County General Plan; and therefore, this impact would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. Groundborne vibration levels from construction equipment and activities would be perceptible only to persons in the immediate vicinity of the work or staging areas. The activity that would be most likely to cause groundborne vibration would be the passing of heavy trucks on uneven surfaces. However, SR 16 is paved and would not generate vibration from any loaded trucks accessing the site. Because the impact from construction or decommissioning-related groundborne vibration would be short-term and confined to only the immediate area around activities (within about 25 to 50 feet). No sensitive receptors would be exposed to any construction/decommissioning vibration. Operation and maintenance of the proposed project would not involve any equipment likely to produce groundborne noise or vibration outside the project boundary. Accordingly, project impacts related to vibration would be less than significant.

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 2 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?

NO IMPACT. The nearest airport to the Project site is the Ala Doble Airport, located about 2.3 miles south-west of the Project site. The next closest airport, Watts-Woodland Airport, is located over 5 miles east of the Project site. Due to the distance of the proposed Project to these aviation facilities, neither construction nor operation of the Project would subject workers to excessive noise levels from airport facilities. No impact would occur.

Noise Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.14 Population and Housing

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.14.1 Setting

The Project site is located about 10 miles east of the City of Woodland in Yolo County on State Route (SR) 16, 0.6 miles east of unincorporated Madison, and 1.2 miles west of the community of Esparto. Nearby cities include Davis, Winters, Woodland, and Sacramento. As of January 2021, the population of Yolo County, including the cities of Davis, West Sacramento, Winters, and Woodland, was estimated at 217,500, with a -1.7 percent population decline from January 1, 2020. During that same time period, the City of Woodland, had a population of 60,978, with an estimated annual growth of 0.3 percent (CDF, 2021).

5.14.2 Environmental Impacts and Mitigation Measures

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)?

NO IMPACT. There would be no direct population growth induced by this Project because it does not involve the construction of new residences or new businesses. Throughout the 6-month long construction process, an expected 140 personnel would commute to and from the site from local communities. Decommissioning of the solar farm in 25 to 30 years would also require approximately 140 personnel and be of short duration. Construction (and decommissioning) needs are not expected to result in relocation of workers to the area. Once construction is completed, the facility would be operated and monitored remotely through the supervisory control and data acquisition (SCADA) system. Three individuals would be employed on a part-time basis to provide maintenance, repair, and other services required for the PV facility. The PV operations and maintenance (O&M) activities would occur approximately 2 working days per month over 12 months, for a total of 24 workdays per year. In addition, to encourage pollinator habitat and control vegetation growth, occasional visits will be required to bring and remove sheep used for grazing, and to bring and remove bees for apiary uses.

The Project would expand the existing electrical infrastructure and increase the supply of renewable energy to the grid. However, the additional energy supplied would not impact population growth because, as noted previously in Section 5.6 (Energy), the project is in response to a request for offers from Valley Clean Energy (VCE) for renewable energy to replace carbon-based electricity. Electricity generated by the facility would be sold under the terms of a 20-year Power Purchase Agreement (PPA) with the VCE. The proposed Project would not result in increases in population, but would seek to partially replace existing demand for electricity from carbon-based sources.

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

NO IMPACT. The proposed Project would be located on an agricultural field and would not displace any people or housing. Construction of the Project would occur for approximately 6 months, with decommissioning having a similar, or shorter duration, Neither activity is expected to result in permanent relocation of workers to the Project area. Construction personnel would likely commute from local communities. The Project would not interfere with existing housing, and therefore, would not displace current residents.

Population and Housing Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.15 Public Services

PUBLIC SERVICES Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.15.1 Setting

The Project site is located within the Esparto Fire Protection District. The project site falls within the Esparto Fire Protection District Station No. 19 jurisdiction—located at 16960 Yolo Avenue, Esparto, California. The Project will comply with the County and Fire District's requirements regarding fire protection and safety.

Law enforcement services in Yolo County are provided by the County Sheriff-Coroner's Office. This department patrols the County, administers the County Jail and work program, provides animal control services, and serves as the County Coroner. The department has 300 full-time and part-time employees and volunteers (Yolo County Sheriff's Office, 2021).

The Project site is within the Esparto Unified School District, which serves Esparto, Madison, and the surrounding unincorporated area of Yolo County. This district has one preschool, one elementary school, one junior high school, and two high schools. The District office is located at 26675 Plainfield Street Esparto, approximately 1.7 miles from the Project site (Yolo County, 2019).

Yolo County Parks Division provides park and recreation services within Yolo County. The County provides regional parks with camping, boating, and fishing (Yolo County, 2019). The Project site is in close proximity to Esparto Community Park and Capay Open Space. These parks provide natural trails, playgrounds, and picnic facilities.

Regulatory Background

National

National Fire Protection Association (NFPA) Standard 855

The NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, is a new standard being developed to define the design, construction, installation, commissioning, operation, maintenance, and decommissioning of stationary energy storage systems. The standards are available only to association members, but the National Rural Electric Cooperative Association (NRECA) has provided a summary. NRECA

states that for battery energy storage specifically, this Standard could regulate batteries used by utilities for grid-scale energy storage as well as those which supply DC power for protection and controls in sub-stations, generating stations, or other applications that were previously exempt from such regulation. Examples of the proposed requirements that could be imposed on these installations include: fire detection and suppression systems (including water based suppression systems), Underwriters Laboratory (UL) listing of battery systems, as well as battery size and separation restrictions.

Data Center Frontier says that the NFPA 855 standard calls for "large-scale fire testing" of batteries to ensure that fires will not spread, citing a testing methodology from UL that offers certification and safety testing for industrial products. The UL 9540A protocol specifically tests lithium-ion batteries for thermal runaway conditions, but industry say the guidance may not be thorough enough. (Data Center Frontier, 2019)

Underwriters Laboratories

NFPA 855 references the UL 9540A standard for meeting strict Energy Storage System thermal runaway fire safety testing requirements. The standard provides a systematic evaluation of thermal runaway and propagation in energy storage systems at cell, module, unit, and installation levels (UL, 2021).

Local

The Yolo County 2030 Countywide General Plan, Public Facilities and Services Element (Yolo County, 2009) includes numerous policies related to public services. Relevant policies are presented below.

Policy PF-5.3 Require assertive fire protection measures in all development to supplement limited rural fire district resources.

Policy PF-5.9 The County shall require, and applicants must provide, a will-serve letter from the appropriate fire district/department confirming the ability to provide fire protection services to the project, prior to each phase.

5.15.2 Environmental Impacts and Mitigation Measures

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a) Fire protection?

LESS THAN SIGNIFICANT IMPACT. The California Department of Forestry and Fire Protection (CAL FIRE) designates the western portion of Yolo County as moderate fire hazard (CAL FIRE, 2007). The Project site Fire Hazard Severity is currently not zoned by CAL FIRE. The surrounding area is primarily orchards and field crops, and the community of Madison lies 0.6 miles to the east. The Project site falls within Esparto Fire Protection District; and therefore, will remain under their jurisdiction. The nearest fire department within the Esparto Fire Protection District is located 2 miles northwest of the Project site. The Project is not expected to induce population growth in the Project area or affect service ratios, response times, or other performance objectives for fire response services (Esparto Fire District, personal communication, April 7, 2021).

While there may be a slight increased need for fire protection response during Project construction and operation due to the lithium iron phosphate (LFP) batteries, these effects would not be sufficient to induce the construction of new or physically altered governmental facilities that could result in significant environmental impacts. LFP batteries have passed the most stringent fire safety standard UL 9540A, so no flames

propagation from one cell to another or from one module to another would occur. The battery system is in full compliance with National Fire Protection Association (NFPA) regulation 855 (UL, 2021).

The final design of the battery system would comply with PG&E requirements and interconnection study results as well as the County requirements and other study results including geotechnical studies, soils reports, and drainage/storm drainage surveys. Per County Policy PF-5.3, the Project would be adjusted in the building plan approval stage, if necessary, to meet current building and fire codes and comply with all County Fire requirements at the site.

During operation, the Project would comply with best management practices (BMPs), permit requirements, building and fire code requirements, and all applicable rules and regulations pertaining to hazardous materials discussed in Section 5.9, Hazards and Hazardous Materials, which would serve to reduce the potential need for fire department services.

County Policy PF-5.9, requires the Applicant to obtain a "will serve" letter from the Esparto Fire Protection District. Thus, the County will require the applicant to obtain a Will Serve letter as part of the Conditions of Approval for the Use Permit, or as part of the building permit process. Therefore, the Project impact would be less than significant regarding fire protection services.

b) Police Protection?

LESS THAN SIGNIFICANT IMPACT. The proposed Project would not require police services during construction, decommissioning, or operation beyond routine patrols and response at the level currently provided. As with fire protection services discussed above, the construction, decommissioning, and operation of the proposed Project would not induce population growth, result in a need for additional police facilities, or significantly affect response times or other service performance. With the installation of solar PV modules mounted on structures, and battery storage systems, crime in the area may be slightly impacted. However, this is not expected to disrupt the current level of services provided by the Yolo County Sheriff's Office.

c) Schools?

NO IMPACT. The proposed Project would not be expected to result in an increase in population within the area. Construction is expected to take approximately 6 months and would not require the permanent relocation of workers to the Project area. Decommissioning would take about the same amount of time, or less. All the construction and decommissioning personnel (approximately 140 workers at peak) would most likely commute to the site daily from local communities. Hence, there would not be an expected increase in families, or in school-age children, as a result of the temporary construction work. During operation, operation and maintenance (O&M) activities of the PV equipment are estimated to require three workers and to occur 2 working days per month, for an average of 24 workdays per year. Thus, O&M activities are not expected to result in the relocation of workers.

d) Parks?

NO IMPACT. The required construction and decommissioning workforce for the Project would likely be hired from the available regional workforce. Although some workers may use recreational areas during the Project construction/decommissioning period, increased use would be minimal and/or temporary because the workforce is anticipated to commute to the project from local communities. As noted above, the facility would be remotely operated, controlled, and monitored with no requirement for daily, onsite employees. A part-time O&M staff of three people would be responsible for performing all routine and emergency operational and maintenance activities of the PV equipment. Therefore, they would not contribute substantially to the physical deterioration of existing parks and recreation areas. No impacts would occur.

e) Other Public Facilities?

NO IMPACT. Project construction and decommissioning would not likely result in an increase in the number of people in communities within the Project vicinity because it is assumed that they would commute from local communities. O&M activities of the PV equipment would only require three personnel to visit the site a few days per month. Although the O&M workers are not anticipated to relocate near the Project site; even if they did, the resulting increase in local population would be insignificant. Therefore, public facilities, such as libraries or courthouses, are expected to adequately handle any small, increase in the local population. Therefore, there would be no impacts on other public facilities.

Public Services Impact Conclusions

Less than significant impacts are expected to the Esparto Fire Protection District and the Yolo County Sheriff's Office. No impacts are expected to schools, parks, or other public facilities. Therefore, the Project impacts would be less than significant with no mitigation required.

5.16 Recreation

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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.16.1 Setting

Yolo County has five parks within 5 miles of the Project site. These parks are intended to provide recreational areas for both the County population and outside visitors. These parks include Capay Open Space, Esparto Community Park, Tuli Mem Park, Cache Creek Nature Preserve, and Wild Wings Park (Yolo County, 2021a). Capay Open Space provides 2 miles of walking trails, a paved parking lot, shade structures, picnic tables, and restrooms. The closest park, Esparto Community Park, is located approximately 2.5 miles away from the Project site and provides picnic tables, a barbecue, large shade trees, a turf area, playground, and restrooms. Tuli Mem Park supplies a wide array of amenities such as: a youth softball field, a soccer field, an outdoor basketball court; a pedestrian bridge and a walking trail; a wading pool and an eight-lane swimming pool. The Cache Creek Nature Preserve also provides natural walking trails, and the Wild Wings park is located on a golf course (Yolo County, 2021b).

Regulatory Background

According to the Yolo County 2030 Countywide General Plan, Public Facilities and Services Element (Yolo County, 2009), expanding park and recreation opportunities is required to meeting the needs of the population as it increases. This Project will not increase population growth and there are no recreation policies that would apply to the Project.

5.16.2 Environmental Impacts

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?

LESS THAN SIGNIFICANT IMPACT. The temporary Project construction and decommission would be approximately 6 months each, throughout which there would be a maximum of 140 construction workers. It is expected that the construction workforce would be locally sourced. Thus, the construction workforce would have little effect on the access or use of recreational facilities such that it would cause substantial physical deterioration of any facility.

Daily operation of the facility would not require personnel to visit the site due to its remote operation. Hence, the proposed Project would not substantially increase the use of existing recreational facilities nor cause accelerated deterioration of those facilities.

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?

NO IMPACT. The Project does not include use of recreational facilities or require construction or expansion of facilities that might have an adverse physical effect on the environment.

Recreation Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.17 Transportation

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.17.1 Setting

The Project site is in an unincorporated area of Yolo County, approximately 0.6 miles west of the community of Madison, California. The transportation system within this unincorporated area consists of a system of State freeways, highways, and rural county roads that serve primarily agricultural uses.

Highways

State Route (SR) 16 runs east to west along the northern boundary of the Project site and provides direct access to the site. SR 16 also connects the Project site to the greater Sacramento area to the east. Interstate 505 (I-505) runs north to south, approximately 1.7 miles west of the Project site. I-505 heading south connects to Vacaville and Interstate 80, which connects to both the Bay Area and Sacramento.

Arterial Roads

The following arterial roads are in proximity to the Project site, and are shown on Figure 4-1 (Vicinity Map):

- CR 23 runs east to west, approximately 0.45 miles south of the Project site.
- CR 88B runs north to south and terminates on the north side of SR 16, directly north of the Project site.
- CR 89 runs north to south, approximately 0.86 miles east of the Project site, connecting to both SR 16 to the north and CR 23 to the south.

Public Transit

Transit services are provided through the Yolo County Transportation District (YCTD) (Yolo County, 2009). The Yolobus Cache Creek transit route (215WB bus, Cache Creek Casino) runs along State Route 16 at the northern boundary of the Project site. This transit route operates every day of the week, from 5:45 AM to 9:55 PM, and has 16 stops starting from the County Fair Mall in Woodland and ending at Cache Creek Casino Resort (YCTD, 2021) in Brooks. The nearest bus stop to the Project site is at Railroad and Main Streets in Madison, approximately 0.87 miles east of the Project site (YCTD, 2021).

Bicycle

A proposed Class II bikeway (a bike lane, providing a striped and stenciled lane for one-way travel on either side of a street or highway) runs along SR 16 at the northern boundary of the Project site (Yolo County, 2009).

Regulatory Background

Yolo County General Plan

The following policies are presented in the Yolo County General Plan, Circulation Element:

Policy CI-3.3 CEQA review for subsequent projects will analyze project traffic and circulation impacts using both the Yolo County General Plan policies and Caltrans policies (based on the CSMPs, TCCRs, or other guidelines) as applicable.

Policy CI-3.18 Ensure adequate access for emergency vehicles.

Policy CI-7.2 Encourage movement of goods by truck on freeways and other appropriate designated routes.

California Department of Transportation (Caltrans), Transportation Impact Study Guide

The Transportation Impact Study Guide (Caltrans, 2020) references OPR's 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA, which identifies projects and areas presumed to have a less than significant transportation impact. It states:

> *In any area of the state, absent substantial evidence indicating that a project would generate a potentially significant level of VMT [vehicle miles traveled], or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact.*

5.17.2 Environmental Impacts and Mitigation Measures

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

NO IMPACT. During Project construction, decommissioning, and operation, the Project site would be accessed directly from SR 16. Because of the limited construction duration and operational working days required for the Project, the Project would not impede goods movement along SR 16, in accordance with Policy CI-7.2 of the County's General Plan Circulation Element. In addition, the Project does not include any changes to SR 16 that would conflict with the proposed Class II bikeway (should it be designated prior to construction) or the existing Yolobus transit route (215WB bus, Cache Creek Casino) along this roadway. It is anticipated that decommissioning activities would be similar to or less than construction. Therefore, the Project would result in no impacts pertaining to compliance with a plan, ordinance, or policy related to the circulation system.

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

LESS THAN SIGNIFICANT IMPACT. As addressed in CEQA Guidelines Section 15064.3 (b), a qualitative analysis of construction traffic VMT may be appropriate. The onsite construction/decommissioning workforce for the Project is expected to peak (during overlapping construction activities) at 140 individuals. The construction workforce is anticipated to commute to the Project site each day from local communities. The worker vehicle trips anticipated to be generated from the Project assumes 112 employees would

commute alone, and 28 employees would carpool (2 per vehicle). Additionally, construction activity trips would include several trucks arriving and departing the site each day to deliver materials, including water for dust suppression, supplies, and equipment. Heavy equipment would not be hauled to/from the Project site daily; it would be hauled in at the beginning of construction and hauled out upon the completion of construction.

Based on these assumptions, Project construction would generate approximately 252 worker vehicle trips per day (126 vehicle trips each way); and would require 16 daily truck trips and 25 additional ancillary trips over the course of Project construction (Gibson Renewables, 2020). This results in a total of 293 trips per day (277 passenger vehicles and 16 trucks). Some truck trips associated with delivery of materials and equipment could originate from longer distances. While these few construction truck trips may require high VMT to access the Project site, they would be temporary trips and only in limited volumes necessary to deliver equipment and materials to the site. Such construction trips, including construction worker commute trips, are not considered to be transit-friendly trips that could reduce overall VMT of Project construction (construction workers typically travel with their own tools and safety equipment). Upon completion of construction, worker commute trips and truck trips would cease. Therefore, the daily contribution of 293 one-way construction trips are not considered to generate a substantial or permanent increase in VMT compared to regional averages for construction projects of a similar scale, nor would they conflict with plans and policies related to the reduction of VMT. Impacts would be less than significant.

With respect to long-term permanent trips associated with a Project, both Caltrans and the California Office of Planning and Research have developed screening thresholds to indicate when a detailed VMT analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact (OPR, 2018; Caltrans, 2020). Operation and maintenance of the PV equipment is expected to generate a maximum number of 20 daily trips, which would come from three part-time workers (Gibson Renewables, 2020) and additional maintenance vehicles. In addition, to encourage pollinator habitat and control vegetation growth, occasional visits will be required to bring and remove sheep used for grazing, and to bring and remove bees for apiary uses. Therefore, the Project would not exceed the threshold that requires a VMT study and no long-term VMT impacts would occur from the proposed Project. Impacts would be less than significant.

Decommissioning would generate similar average daily worker and truck trips as that occurring under Project construction. All construction/decommissioning trips would be temporary and would cease when construction and decommissioning are completed. Since such trips would be temporary, decommissioning of the Project is not considered to generate a substantial or permanent increase in VMT nor would it conflict with plans and policies related to the reduction of VMT. Impacts would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. Project construction, decommissioning, and operation do not include any changes to the roadway alignment or intersections along SR 16. Therefore, the Project would not introduce any hazards, including sharp curves or dangerous intersections, to this roadway. Additionally, construction would not require the temporary closure or disruption of any public roadways. Stabilized construction entrances and exits would be installed at each driveway to facilitate access for construction vehicles and equipment. In addition, the Project design includes onsite perimeter and center line compacted dirt roads to facilitate vehicle and equipment access during Project operation. By providing adequate access to and within the Project site, any potential impacts related to traffic hazards from the movement

of vehicles and equipment would be substantially minimized. Therefore, the Project would result in less than significant impacts.

d. Would the project result in inadequate emergency access?

NO IMPACT. Construction would not require the temporary closure or disruption of any public roadways. Additionally, during Project construction and decommissioning, stabilized construction entrances and exits would be installed at each driveway to facilitate access for construction vehicles and equipment. Because these access points would be provided at the Project site, emergency access along SR 16, as well as access to or within the Project site, would not be affected by Project construction or decommissioning. During operation, the Project site would be accessed directly from SR 16 with onsite perimeter and center line compacted dirt roads for fire access and facility operations. The Project design would be reviewed and approved by the Esparto Fire Protection District to ensure compliance with the County's requirements for fire protection and safety, which includes the provision of adequate emergency access. Therefore, the Project would result in no impacts.

Transportation Impact Conclusions

The Project would result in less than significant impacts with no mitigation required.

5.18 Tribal Cultural Resources

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.18.1 Setting

Tribal Cultural Resources (TCRs) is a newly defined class of resources under Assembly Bill 52 (AB 52). TCRs include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a California Native American tribe (Tribe). To qualify as a TCR, the resource must either: (1) be listed on, or be eligible for listing on, the California Register of Historical Resources (CRHR) or other local historic register; or (2) constitute a resource that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR (PRC §21074). AB 52 also states that tribal representatives are considered experts appropriate for providing substantial evidence regarding the locations, types, and significance of TCRs within their traditional and cultural affiliated geographic areas. Therefore, the identification and analysis of TCRs should involve government-to-government tribal consultation between the California Environmental Quality Act (CEQA) lead agency and interested tribal groups and/or tribal persons. (PRC § 21080.3.1(a)).

Approach to Analysis of Tribal Cultural Resources

Information presented in this section was gathered through AB 52 government-to-government consultation between Yolo County (County) and the California Native American Tribes that have cultural affiliations with the proposed Project area and that have requested to consult on the proposed Project. Supplementary information was gathered from the cultural resources literature and records search, cultural resources field survey, Native American Heritage Commission (NAHC) Sacred Lands File search, Tribal outreach, and ethnographic summary that was described in Section 5.5 (Cultural Resources).

Project Notification

AB 52 requires that within 14 days of the lead agency determining that a project application is complete, a formal notice and invitation to consult about the proposed Project is to be sent to all tribal representatives

who have requested, in writing, to be notified of projects that may have a significant effect on TCRs located within the proposed Project area (PCR § 21080.3.1(d)).

On March 26, 2021, Yolo County Department of Community Services sent AB 52 notification letters to a total of five tribes that had previously submitted a written request to the County to receive notification of proposed projects. These tribes included the Yocha Dehe Wintun Nation, Wilton Rancheria, Cortina Rancheria Band of Wintun Indians of California, Ione Band of Miwok Indians, and Torres-Martinez Desert Cahuilla Indians. The Yocha Dehe Wintun Nation, Wilton Rancheria, Cortina Rancheria Band of Wintun Indians of California, and Torres-Martinez Desert Cahuilla Indians were sent the notification letter via email, while the Ione Band of Miwok Indians where sent a hard copy letter because an email address is not on file with the County.

The letters included a brief description of the proposed Project, instructions on how to contact the lead agency Project Manager, a map of the Project area, and a statement that responses must be received within 30 days of the date of receipt of the letter.

The Wilton Rancheria, responded via email on March 30, 2021, indicating that the Tribe had no concerns with this Project. On March 18, 2021, Yocha Dehe Wintun Nation's Cultural Resources Manager, Laverne Bill, provided a response to a separate outreach effort from the County to the Yocha Dehe Wintun Nation. Mr. Bill determined that the Project is within the aboriginal territories of the Yocha Dehe Wintun Nation and that the Nation has a cultural interest and authority in the proposed Project area.

AB 52 Tribal Consultation

None of the five tribes contacted requested formal AB 52 consultation. Only the Wilton Rancheria, responded to the notification letter indicating that the tribe had no concerns with this Project. The Yocha Dehe Wintun Nation Tribe responded to a separate outreach effort from the County. No TCRs were identified that may be impacted by the proposed Project as a result. Although no known TCRs were identified within the Project area, potential impacts to unknown cultural resources that could be considered TCRs are possible. In response to potential inadvertent discoveries MMs CUL-1 through CUL-3, in Section 5.5 Cultural Resources, were developed to address these impacts, and are relevant to TCRs.

5.18.2 Environmental Impacts and Mitigation Measures

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. No known TCRs that are listed in, or are known to be eligible for listing in, the CRHR or local register of historical resources, were identified within the Project area or the 0.5-mile radius. However, it is possible that previously unidentified TCRs that may be eligible for inclusion in the CRHR, or local registers could be discovered and damaged, or destroyed, during ground disturbance, which would constitute a significant impact absent mitigation. Implementation of MMs CUL-1 through CUL-3 (see Section 5.5, Cultural Resources) would evaluate and protect unanticipated TCR discoveries; thereby, reducing this impact to less than significant.

(ii) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. No known TCRs were identified or determined by the lead agency to qualify as a historical resource within the proposed Project or 0.5 miles surrounding area. However, it is possible that previously unidentified TCRs could be discovered and damaged, or destroyed, during ground disturbance, which would constitute a significant impact absent mitigation. Implementation of MMs CUL-1 through CUL-3 (see Section 5.5, Cultural Resources) would evaluate and protect unanticipated TCR discoveries; thereby, reducing this impact to less than significant.

Tribal Cultural Resources Impact Conclusions

There are no known TCRs located within the Project area or within 0.5 miles of the Project area's boundary. Therefore, the analysis concludes that there would be no potential impacts to known TCRs. However, there is always the potential for ground-disturbing activity to cause an unexpected impact to buried TCRs that are presently unknown and unrecorded; therefore, MMs CUL-1 through CUL-3 are recommended (see Section 5.5, Cultural Resources). Implementation of MMs CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown TCRs to a less-than-significant level.

5.19 Utilities and Service Systems

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.19.1 Setting

There are a variety of municipal wastewater systems that currently serve the cities and towns of Yolo County. The cities of Davis, Winters, and Woodland use secondary treatment systems. According to the Public Facilities and Service Systems Element of the Yolo County General Plan, Esparto, Madison and Knights Landing have primary/secondary treatment (Yolo County, 2009). The Project would not require any permanent septic or sanitation infrastructure. During construction, portable restrooms (porta-potties) would be delivered to the site and maintained by an affiliate or subcontracted entity.

Similarly, stormwater drainage facilities are limited in the unincorporated County. Many agricultural land uses employ onsite ditches that convey stormwater to existing roadside ditches (Yolo County, 2009). Additionally, the Project would require up to 8 acre-feet (AF) of water during the construction phase, and up to 1.2 AFY of water for module washing during the operation phase, with an additional 3 acre-feet per year (AFY) needed to irrigate the plant substrate during the first 3 years of operation. Water for dust suppression during construction, the first 3 years of operation, and decommissioning would be purchased from YCFC&WCD. If YCFC&WCD—which manages the County's surface and groundwater resources—determines that the following year would be an "allocation year" and the County will have a limited supply of surface water, the applicant would purchase water from other off-site resources including private wells.

Utility service in Yolo County is provided by Pacific Gas & Electric (PG&E). Two major north-south transmission line corridors have been developed in the County, running along Dunnigan Hills and Interstate-505 (I-505) in the west and along Yolo Bypass in the east (CEC, 2021). Electricity generated by the facility would be sold under the terms of a 20-year Power Purchase Agreement (PPA) with Valley Clean Energy (VCE). The electricity generated by the photovoltaic (PV) field would be used in part for charging the batteries and the remaining energy generated by the PV field would be delivered to the grid through PG&E's Madison Substation.

AT&T is the primary provider of landline telephone service. Cell phone and wireless service is provided by a network across the County, but there are gaps or poor reception in several of the unincorporated communities and remote rural areas.

There are two public facilities for solid waste and recycling in Yolo County, those being the Yolo County Central Landfill and Esparto Convenience Center. The Yolo County Central Landfill is a 722-acre, Class III solid waste landfill that provides solid waste and recycling services. At the current waste disposal rate, the landfill's closure date is estimated as January 1, 2081. The Esparto Convenience Center is an 11-acre facility accepting residential municipal solid waste and recycling. The transfer station does not have an estimated operational life; it will be closed when it is no longer needed (Yolo County, 2009).

Regulatory Background

Federal

Federal Clean Water Act. The State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) are responsible for the regulation and enforcement of the water quality protection requirements of the federal Clean Water Act (CWA) and the state's Porter-Cologne Water Quality Control Act (Porter-Cologne). The National Pollutant Discharge Elimination System (NPDES) is the permitting program that allows point source dischargers to comply with the CWA and Porter-Cologne laws. This regulatory framework protects the beneficial uses of the state's surface and groundwater resources for public benefit and environmental protection. Protection of water quality could be achieved by the proposed Project by complying with applicable NPDES permits from the SWRCB or the Central Valley RWQCB.

State

Integrated Waste Management Act. The Integrated Waste Management Act of 1989 requires cities and counties to reduce, by 50 percent, the amount of solid waste disposed of in landfills by the year 2000 and beyond. To comply with the Integrated Waste Management Act, counties adopt regulations and policies to fulfill the requirements of the Act.

Assembly Bill (AB) 341

Mandatory Commercial Recycling was one of the measures adopted in the AB 32 Scoping Plan in 2006. The Mandatory Commercial Recycling Measure focuses on increased commercial waste diversion as a method to reduce GHG emissions. This regulation reflects the statutory provisions of AB 341 (Chesbro, Chapter 476, Statutes of 2011) and provides additional procedural clarifications. In 2012, the Governor signed Senate Bill 1081 which included an amendment that requires a business that generates 4 cubic yards or more of commercial solid waste per week to arrange for recycling services (CalRecycle, 2021).

Local

Yolo County Climate Action Plan (CAP)

The Yolo County Climate Action Plan (CAP) proposes greenhouse gas reduction measures in five sectors (Agriculture, Transportation and Land Use, Energy, Solid Waste, and Wastewater), and adaptation to reduce the emissions and combat climate change. In addition, the County set some supporting measures to be implemented by 2030.

To achieve this 2030 target, the CAP calls for pursuing a Community Choice Aggregation (CCA) program (such as Valley Clean Energy) to ensure 75 percent of the County is relying on 50 percent renewable, and 25 percent of the County relying on 100 percent renewable.

County of Yolo General Plan. The Yolo 2030 Countywide General Plan, Public Facilities and Services Element (2009) includes numerous policies related to utilities and service systems. Relevant policies are listed below.

Policy PF-2.2 Construct on-site stormwater detention facilities that are designed so that runoff from the 100-year storm event does not: (1) result in an increase in peak release rate; (2) result in a time decrease associated with the time of concentration; (3) contribute to adjacent flood problems; and/or (4) significantly alter the direction of runoff.

Policy PF-9.2 Manage property to ensure adequate landfill space for existing and planned land uses.

Policy PF-9.8 Requires salvage, reuse or recycling of construction and demolition materials and debris at all construction sites.

Policy PF-9.9 Encourages use of salvaged and recycled materials in construction.

Policy PF-10.2 Streamline the permitting process for the production of energy alternatives (including but not limited to photovoltaic, solar, wind, biofuels, and biomass), to reduce dependency on fossil fuels.

Policy PF-10.3 Provide financial and regulatory incentives for the installation of alternative energy and alternative energy conservation measures in all development approvals.

Policy PF-10.4 Provide financial and regulatory incentives for the installation of alternate energy and other alternate energy conservation measures for agriculture.

Policy PF-11.1 Encourage the development of power generating and transmission facilities in appropriate alignments and locations, sufficient to serve existing and planned land uses.

Policy PF-11.3 Require utility lines to follow field edges to minimize impacts on agricultural operations.

Policy PF-11.5 Increase the availability and reliability of power to the rural areas, including underserved communities.

5.19.2 Environmental Impacts and Mitigation Measures

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?

LESS THAN SIGNIFICANT IMPACT. The Project would not affect existing water, wastewater, or stormwater systems. During construction and demolition, water for dust suppression (estimated at 8 AF) would be imported in tanker trucks. Anticipated onsite water use during operations is 1.2 AF of water for module washing per year, and 3AFY to irrigate the plant substrate—for a total of 4.2 AFY during the first 3 years. This amount is less than the historical average of 4.3 AFY used for annual crop production during the past 5 years. All water will be sourced off-site and purchased from other resources including private wells. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared, and best management practices would be followed to reduce potential impacts to storm water. The Project will create a negligible number of impervious surfaces and all applicable measures will be designed to meet state and local storm water management plan requirements.

The goal of the Project is to increase the amount of renewable energy generation in Yolo County to assist the CCA in meeting current demand, thereby complying with the directives in the Yolo County Climate

Action Plan. Although the Project does involve the construction of a new PV farm and expansion of existing electrical infrastructure, it would not cause significant environmental effects. This Project will not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, natural gas, or telecommunication systems. This Project does involve the construction of expanded electric power infrastructure; however, the addition of the solar farm would not result in significant environmental effects related to the construction of utility and service infrastructure, and supports local and state goals to increase generation of renewable power. The Project would not involve the expansion of telecommunication facilities.

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?

NO IMPACT. Water use during construction would be primarily for dust suppression and would be delivered in tanker trucks. For current land use, water demand is estimated to be 3.8 AF for alfalfa farming and 2.7 AF for tomato farming. Over the past 5 years, water use at the site has averaged 4.3 AFY for crop irrigation. The proposed Project would require up to 8-AF of water during the construction phase (6 months), up to 1.2 AF of water for module washing per year during the operation phase; and up to 3 AFY for the first 3 years of operation to irrigate the plant substrate. If the YCFC&WCD declares an "allocation year," the Applicant will purchase water from other resources including private wells. Hence, the Project would not permanently increase the water demand of the parcel and would, thereby, have sufficient water supplies available to serve the Project. Therefore, the Project would have no adverse impact on water supply.

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?

LESS THAN SIGNIFICANT IMPACT. Approximately 140 workers may be onsite at peak for construction and decommissioning activities. A part-time O&M staff of three people will be responsible for performing all routine and emergency operational and maintenance activities of the PV equipment. It is estimated that they would work approximately 2 days per month over 12 months, for a total of 24 workdays per year. Portable restrooms (porta potties) would be used during project construction and decommission, which would be pumped out by a vacuum truck, as needed. The amount of wastewater generation during the construction and decommission months would be temporary and would not result in a strain on the area's wastewater treatment operations. The Project would therefore result in a 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?

LESS THAN SIGNIFICANT IMPACT. Construction of the proposed Project would generate solid waste. However, it is anticipated that at least 20 percent of construction waste would be recyclable, and at least 50 percent of those materials would be recycled. Minimal to no solid waste would be generated during operation. During decommissioning, the chemical components of the batteries would either be disposed of as hazardous waste, or be recycled, or reused, depending on technology at that time. The solar panels would be recycled at the end of their lifetime. Therefore, this Project would have minimal impacts on landfills and would not affect the ability of landfills in the area to comply with federal, State, and local statutes and regulations pertaining to solid waste.

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

NO IMPACT. As noted in d. above, at least 20 percent of construction waste would be recyclable, and batteries would be reused when possible. The Project would be consistent with General Plan Policy PF-9.8, which requires salvage, reuse, or recycling of construction materials and would have to use salvaged and recycled materials in construction to be consistent with Policy PF-9.9. The proposed Project would operate in accordance with AB 341 when applicable by recycling when the project's waste generation exceeds 4 cubic yards of commercial solid waste per week (CalRecycle, 2021). Hence, all federal, State, and local solid waste regulations, as implemented and enforced by Yolo County, would be satisfied.

Utilities and Service Systems Impact Conclusions

No significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.20 Wildfire

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

Significance criteria established by CEQA Guidelines, Appendix G.

5.20.1 Setting

The California Department of Forestry and Fire Protection (CAL FIRE) identifies and maps areas of significant fire hazards based on fuels, terrain, and other relevant factors. These maps categorize this information by Fire Hazard Severity Zones (FHSZs), grouped into un-zoned, moderate, high, and very high zones. State Responsibility Areas (SRAs) are locations where the State of California is responsible for wildfire protection and Local Responsibility Areas (LRA) are locations where the responding agency is the county or city.

The areas with the most significant fire hazard in Yolo County are the far western and northern portions of the County. In the increasingly hilly landscapes rising to the north and west, the rugged topography creates a landscape where fires can spread rapidly upslope and access for suppression equipment is limited (Yolo County, 2009a). CAL FIRE designates these areas of the County as moderate fire hazard (CAL FIRE, 2021). The Project is located west of the City of Woodland on flat land that is currently used to grow alfalfa and tomatoes. The Project site is surrounded by agricultural land use, consisting of dry field crops and orchards. The Project site's Fire Hazard Severity is currently un-zoned by CAL FIRE. The FHSZ classification directly west of the project site is moderate. Additionally, the Project will comply with the County's requirements regarding fire protection and safety.

Regulatory Background

State

Fire Hazard Severity Zones (Pub. Resources Code, §§ 4201-4204). The purpose of establishing fire hazard severity zones (FHSZs) is to provide for the classification of lands within SRAs in accordance with the severity of fire hazard present and identify measures to be taken to retard the rate of spreading and to reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property.

Fire Hazard Severity (Cal. Code Regs, tit. 14, § 1280). FHSZs reflect the degree of severity of fire hazard.

Local

County of Yolo Emergency Operations Plan. This document outlines the responsibilities of the Emergency Management Organization for Yolo County. The plan includes a hazard analysis that identifies the natural hazards and risks that can impact a community based on historical experience and estimates the potential frequency and magnitude of disasters. The plan also includes developed standard emergency management goals and objectives as part of a strategy for emergency management.

The following policies are presented in the Yolo County General Plan, Health and Safety Element (Yolo County, 2009a).

Policy HS-3.1 Manage the development review process to protect people, structures, and personal property from unreasonable risk from wildland fires.

Policy HS-3.2 Encourage well-organized and efficient coordination between fire agencies and the County.

The following policies are presented in the Yolo County General Plan, Public Facilities and Services Element (Yolo County, 2009b).

Policy PF-5.9 The County shall require, and applicants must provide, a will-serve letter from the appropriate fire district/department confirming the ability to provide fire protection services to the project, prior to each phase.

5.20.2 Environmental Impacts and Mitigation Measures

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

LESS THAN SIGNIFICANT IMPACT. During Project construction, traffic levels would experience a minimal increase that is not expected to degrade traffic performance significantly. No streets would be closed, rerouted, or substantially altered during construction. The solar panel structures would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

The Project construction and decommissioning involves the addition of 140 workers (peak) to the local area, which could potentially increase emergency response demand during a potential evacuation. However, construction and decommissioning is temporary. Normal operations of the PV equipment will be managed remotely with a part-time maintenance staff of three people. Emergency access to the Project site and surrounding area would be unaltered. Thus, the 25- to 30-year Project would not interfere with the coordination of the city's emergency operations plan, nor would the Project interfere with any statewide emergency response, or evacuation routes or plans.

b. 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?

LESS THAN SIGNIFICANT IMPACT. The topography of the Project site is flat, and the Project area is surrounded by agriculture fields. The presence and usage of fossil fuels and power during construction could lead to a temporary increased risk of wildfire and pollutant concentrations in the event of a fire during construction. However, since the Project area will be surrounded by irrigated agriculture, the potential of increased wildfire risk is minimal. The proposed Project would have less than significant impacts pertaining to exacerbating wildfire risks and increased pollutant concentrations as a result of a wildfire due to prevailing winds, slope, or elevation of the Project site.

c. 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?

LESS THAN SIGNIFICANT IMPACT. The greatest fire risk could be potential upset to the onsite battery energy storage facility. As discussed in the previous question, and elsewhere in the Initial Study, the battery energy storage system container will have a power conversion system, switchgear, racks of batteries, HVAC units, and all associated fire and safety equipment inside. Construction of foundations and battery containers would conform to all applicable building codes and regulations ensuring that the proposed Project would have less than significant impacts pertaining to exacerbating fire risks. Additionally, because the existing land use and current surrounding land use is irrigated agriculture, the fire risk of the Project site remains low.

There is an existing road along the perimeter of the site. There will be construction of compacted native dirt roads running through the Project site that serve as access roads for operation, maintenance, and fire access. These roads will not exacerbate fire risk, but will act as fire breaks. Since power lines already exist along the southerly and westerly property lines, the addition of a 2400-foot power generation tie line from the project to the point of interconnection with an existing 21-kilovolt (kV) Pacific Gas & Electric (PG&E) distribution line, will not significantly increase fire risk. The installation and maintenance of the battery storage facility, access roads, and power lines will not exacerbate fire risk and, will therefore, have a less than a significant impact.

d. 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?

LESS THAN SIGNIFICANT IMPACT. The Project site is flat, with the nearest topographical feature being the foothills of western Yolo County, west of the site. Due to the flat topography of the site, minor ground disturbance associated with Project construction would not destabilize any slopes that could trigger landslides. While the solar modules themselves have an impervious surface, these angled panels would enable water to flow to the ground, with runoff flowing in the direction of the natural drainage of the site, preventing ponding or erosion. As stated above in question b., the final design will comply with PG&E requirements and interconnection study results as well as the County requirements and other study results including drainage/storm drainage surveys. The Project would not 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. Impacts would be less than significant.

Wildfire Impact Conclusions

No potentially significant adverse impacts are identified or anticipated, and no mitigation measures are required.

5.21 Mandatory Findings of Significance

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

Significance criteria established by CEQA Guidelines, Appendix G.

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?

POTENTIALLY SIGNIFICANT. Based on the information provided in this Initial Study and the mitigation measures required, the Project may degrade the quality of the environment.

Section 5.2, Agriculture and Forestry Resources, indicates that the proposed Project would occupy a 147-acre parcel of prime farmland (Class I and II). The proposed Project would convert the parcel of Prime Farmland from agricultural uses to an industrial use as a very large solar energy generation facility. The Solar Energy Systems Ordinance requires very large-sized facilities to mitigate for the permanent loss of agricultural land in accordance with the County's Agricultural Conservation and Mitigation Program (Section 8-2.404 of the Yolo County Code), which has established a 3:1 mitigation requirement for conversion of Prime Farmland, which can be adjusted to 1:1 if the easements are placed on parcels partly or entirely within a qualifying priority conservation area (0.25 mile of the sphere of influence of a city or Esparto's Urban Growth Boundary), or 2:1 if the easements are placed in the designated areas between Davis and Woodland. The project would convert Prime Farmland to a non-agricultural use resulting in significant impacts. Therefore, this impact and feasible mitigation measures will be addressed further in an Environmental Impact Report.

The Project site is currently under a Williamson Act contract. Conversion of the parcel from prime farmland would be inconsistent with Yolo County's Williamson Act Program. It would be a large industrial use, which would significantly compromise long-term productive agricultural capability, and significantly displace current agricultural operations on the contracted parcel. The proposed project presents a potential conflict with the Williamson Act contract if it cannot meet the compatibility criteria, and could therefore result in a potentially significant impact. This impact will be further studied in an Environmental Impact Report.

Section 5.3, Air Quality, indicates that the only potentially significant impact would be from fugitive dust emissions arising during construction/demolition. The applicant, as part of its project description, proposes implementing minimization measures that would reduce fugitive dust emissions and meet the requirements of Yolo-Solano Air Quality Management District (YSAQMD). Therefore, no mitigation measures are required to control fugitive dust emissions.

Section 5.4, Biological Resources, identifies that the project will impact approximately 147 acres of Swainson's hawk foraging habitat. The project is not expected to affect the local or regional breeding population. In addition, because the project site will be managed with a grassland and pollinator plant substrate, it is expected to support relatively high-value habitat for rodent and insect prey species, and serve as a source of recolonization of rodent species into adjacent cultivated fields, similar to fallow or weedy fields or uncultivated grasslands and pastures. As a result, the conversion of 147 acres of irrigated cropland to a solar field managed to enhance biological values, including prey resources for the Swainson's hawk, is not considered a significant impact to Swainson's hawk foraging habitat.

The project site supports an active Swainson's hawk nest (the nest tree could also be potentially used by nesting white-tailed kites). Although the nest tree will not be removed—and is approximately 30 feet from the edge of the solar array—there are no noise or visual disturbances associated with project operation. However, construction and decommissioning activities during installation/removal of the project could disturb the active nest and potentially result in nest abandonment and mortality of eggs or young. Mortality of this state-listed species resulting from construction-related disturbances would be considered a significant impact. However, this impact would be avoided with implementation of a Mitigation Measure (BIO-1) requiring preconstruction/predemolition surveys and/or construction monitoring.

Section 5.5, Cultural Resources, and Section 5.18, Tribal Cultural Resources, indicate that the record search and intensive pedestrian survey did not identify any known historical resources in the Project area. However, ground-disturbing activity, such as grading, trenching, or excavations, has the potential to impact unknown buried resources that may be considered a unique archaeological resource per California Environmental Quality Act (CEQA). Therefore, mitigation measures—such as worker environmental awareness training (CUL-1), dealing with inadvertent discoveries (CUL-2), and treatment of human remains (CUL-3)—are required that would reduce impacts to unknown resources to a less than significant level.

Section 5.7, Geology and Soils, indicated that a paleontological records search was conducted for this Project from the records of the University of California Museum of Paleontology (UCMP). The closest fossil locality found was in Pleistocene sediments 12 miles southeast of the Project. Because the natural surface of the site are of Holocene age, and no excavations are expected to reach Pleistocene sediments, impacts to paleontological resources are expected to be minimal. Implementation of Mitigation Measure PAL-1 would reduce risks to less than significant if unexpected paleontological resources are encountered during Project construction.

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, effects of other current projects, and the effects of probable future projects.)

LESS THAN SIGNIFICANT IMPACT. Based on the analysis provided in this Initial Study, the Project would have no significant cumulative impacts. Yolo County contains about 250,695 acres of prime farmland.[3] The Project will occupy approximately 147 acres of prime farmland, or about 0.058 percent of the County's existing prime farmland. Although the Project could convert prime farmland—which is permitted upon issuance of a Use Permit so long as proper mitigation is adopted and approved—solar energy development would play a key role in reducing the consumption of non-renewable energy in the County and in California. Solar developments in Yolo County, such as the proposed Project, could contribute to a beneficial cumulative impact to reduce greenhouse gases.

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

LESS THAN SIGNIFICANT IMPACT. As indicated throughout this Initial Study, substantial adverse effects are not expected to occur as a result of Project construction or operation. The proposed Project's impacts on the environment included areas identified as having "no impact," "less than significant impact," and "less than significant with mitigation incorporated," and "Potentially Significant Impact." The Applicant has proposed minimization measures in its Project description to address identified air quality impacts; mitigation measures have been imposed to reduce all other identified impacts to a less than significant level, with the exception of agricultural resources which will be reviewed in greater depth in the EIR. However, based on the information provided in this Initial Study, the Project would not have any environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

[3] Davis Enterprise. 2019. Letter to the Editor, "Ag is key in Yolo County" by Michelle Clark, Yolo Land Trust Executive Director. Available at https://www.davisenterprise.com/forum/letters/letter-agriculture-is-important-to-yolo-county/. Accessed February 12, 2020.

Appendix A

List of Preparers

Appendix A. List of Preparers

A consultant team headed by Aspen Environmental Group prepared this document under the direction of Yolo County. The preparers and technical reviewers of this document are presented below.

Lead Agency

Yolo County, Department of Community Services Planning Division

Tracy Gonzalez, Junior Planner ..... Lead Agency Contact
Stephanie Cormier, Principal Planner ..... Project Oversight

Project Management and Document Production

Aspen Environmental Group – Prime Contractor

John Carrier, Senior Project Manager ..... Project Manager
Amanda Wild, Environmental Planner ..... Deputy Project Manager
Scott Debauche, Environmental Planner ..... Aesthetics
Eileen Allen, Senior Land Use Planner ..... Agriculture and Forestry
Brewster Birdsall, Senior Engineer ..... Air Quality
Lauren DeOliveira, Senior Cultural Resources Specialist ..... Cultural Resources
Pilar Ceniceroz, Environmental Scientist ..... Energy
Tanner Lichty, Environmental Scientist ..... Geology and Soils
Brewster Birdsall, Senior Engineer ..... Greenhouse Gas
Tanner Lichty, Environmental Scientist ..... Hazards and Hazardous Materials
Amanda Wild, Environmental Planner ..... Hydrology and Water Quality
Eileen Allen, Senior Land Use Planner ..... Land Use and Planning
Pilar Ceniceroz, Environmental Scientist ..... Mineral Resources
Scott Debauche, Environmental Planner ..... Noise
Pilar Ceniceroz, Environmental Scientist ..... Population and Housing
Pilar Ceniceroz, Environmental Scientist ..... Public Services
Pilar Ceniceroz, Environmental Scientist ..... Recreation
Jeanne Ogar, Senior Environmental Planner ..... Transportation & Traffic
Lauren DeOliveira, Senior Cultural Resources Specialist ..... Tribal Cultural Resources
Pilar Ceniceroz, Environmental Scientist ..... Utilities and Service Systems
Pilar Ceniceroz, Environmental Scientist ..... Wildfire
Mark Tangard, Documents Manager ..... Document Production
Kellie Keefe, GIS Specialist ..... GIS/Graphics

Estep Environmental Resources – Biological Resources

Jim Estep, Environmental Scientist ..... Biological Resources

Appendix B

References

Appendix B. References

Aesthetics

Caltrans (California Department of Transportation). 2021. California State Scenic Highways. [Online]: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed April 2021.

Gibson Renewables, LLC. 2020. Land Use Permit Application for Gibson Solar Farm. December.

Agriculture and Forestry Resources

DOC (California Department of Conservation). 2016. Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance Yolo County. [Online]: https://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/soils/Yolo_gSSURGO.pdf. Accessed April 10, 2021.

_____. 2019. California Important Farmland Finder. [Online]: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed April 9, 2021.

UC Davis (University of California, Davis) and Natural Resource Conservation Service (NRCS). 2021. Soilweb: An Online Soil Survey. [Online]: https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed April 9, 2021.

Yolo County. 2009a. 2030 Countywide General Plan. Agriculture and Economic Development Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14465/635289380535200000. Accessed April 10, 2021.

_____. 2009b. 2030 Countywide General Plan. Land Use and Community Character Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/68781/637516723220130000. Accessed September 9, 2021.

_____. 2014. Zoning Code Article 3, Agricultural Zones. Sec.8-2.404 (a-d). [Online]: https://www.yolocounty.org/government/general-government-departments/community-services/planning-division/zoning-code. Accessed April 9, 2021.

_____. 2015. Agricultural Conservation and Mitigation Program, Section 8.2-404, Article 4 of Yolo County Special Agricultural Regulations, Yolo County Code of Ordinances. [Online]: https://codelibrary.amlegal.com/codes/yolocounty/latest/yolo/0-0-0-28740. Accessed September 9, 2021.

_____. 2017. Williamson Act Guidelines. [Online]: https://www.yolocounty.org/home/showdocument?id=50672. Accessed April 10, 2021.

_____. 2019. Yolo County GIS Viewer. [Online]: https://www.yolocounty.org/government/general-government-departments/general-services/geographic-information-system-gis. Accessed April 9, 2021.

_____. 2021. Very Large Solar Energy Facilities Ordinance. [Online]: https://codelibrary. amlegal. com/codes/yolocounty/latest/yolo/0-0-0-29931. Accessed April 10, 2021.

Air Quality

CARB (California Air Resources Board). 2016. Ambient Air Quality Standards. May 4. [Online]: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed September 2021.

YSAQMD (Yolo-Solano Air Quality Management District). 2007. Handbook for Assessing and Mitigating Air Quality Impacts. July 11. [Online]: http://www.ysaqmd.org/wp-content/uploads/Planning/CEQAHandbook2007.pdf. Accessed April 2021.

_____. 2021. Attainment Status Chart. [Online]: http://www.ysaqmd.org/wp-content/uploads/Graphics/Attainment_Status.png. Accessed April 2021.

Biological Resources

Beedy, E.C., and W.J. Hamilton III. 1999. Tricolored Blackbird (Agelaius tricolor). In: The Birds of North America, No. 423 (A. Poole and F. Gill [eds.]). The Birds of North America, Inc., Philadelphia, PA.

California Natural Diversity Data Base. 2020. Search of quads in the vicinity of the Gibson Solar Project, Yolo County.

Dolezal, A., J. Torres, and M. O'Neal. 2021. Can Solar Energy Fuel Pollinator Conservation, Environmental Entomology, 2021;nvab041. [Online]: https://doi.org/10.1093/ee/nvab041.

Dunk, J.R. 1995. White-tailed Kite (*Elanus leucurus*). In The Birds of North America, No. 178 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

eBird (online database of bird observations) [Online]: https://ebird.org/home

Erichsen, A.L. 1995. The White-tailed kite (*Elanus leucurus*): nesting success and seasonal habitat selection in an agricultural landscape. Thesis. University of California, Davis, CA.

Estep, J.A. 2013. Swainson's Hawk and Other Raptor Foraging Use of Solar Array Fields within an Agricultural Landscape in Sacramento County. Prepared for Recurrent Energy, San Francisco, CA

_____. 2020. The 2020 Distribution, Abundance, and Habitat Associations of the Swainson's Hawk (*Buteo swainsoni*) in Yolo County, CA. Prepared for the Yolo Habitat Conservancy, Woodland, CA.

Fellers, G.M., and E.D. Pierson. 2002. Habitat use and foraging behavior of Townsend's bigeared bat (*Corynorhinus townsendii*) in coastal California. J. of Mammalogy, 83(1):167-177.

Gervais, J.A., D.R. Rosenberg, and L.A. Comrack. 2008. Burrowing Owl. In: W.D. Shuford and T. Gardali, eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Dept. of Fish and Game, Sacramento.

Gibson Renewables, LLC. 2020. Land Use Permit Application for Gibson Solar Farm. December

Goetzberger, A., and A. Zastrow. 1982. On the Coexistence of Solar-Energy Conversion and Plant Cultivation. International Journal of Solar Energy, 1(1):55–69.

Humple, D. 2008. Loggerhead shrike. In: W.D. Shuford and T. Gardali, eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Dept. of Fish and Game, Sacramento.

Hunting, K., and L. Edson. 2008. Mountain Plover. In: W.D. Shuford and T. Gardali, eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1.

Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Hunting, K.W., S. Fitton, and L. Edson. 2001. Distribution and Habitat Associations of the Mountain Plover (*Charadrius montanus*) in California. Trans. West. Sect. Wildl. Soc. 37: 37-42.

Manolis, T., and G.V. Tangren. 1975. Shorebirds of the Sacramento Valley, California. Western Birds 6: 45-54.

Pierson, E.D. 1988. The status of Townsend's big-eared bats in California: Preliminary results 1987–1988. Unpublished Progress Report, Wildlife Management Division, California Department of Fish and Game, Sacramento, CA.

Pierson, E.D., and W.E. Rainey. 1998. Pallid bat *Antrozous pallidus*. In Terrestrial Mammal Species of Special Concern in California, B.C. Bolster, ed. Draft Bird and Mammal Conservation Program Report No. 98-14, California Department of Fish and Game.

Pierson, E.D., W.E. Rainey, and C. Corben. 2006. Distribution and status of Western red bats (*Lasiurus blossevillii*) in California. Calif. Dept. Fish and Game, Habitat Conservation Planning Branch, Species Conservation and Recovery Program Report 2006-04, Sacramento, CA.

Sol Ecology. 2021. Biological Resources Report, Gibson Solar Facility Project, Yolo County. Prepared for Gibson Renewables, LLC, Pleasanton, CA.

Tompkins, M., P. Frank, and A.P. Rayburn. 2017. 2017 Technical Studies and 20-year Retrospective for the Cache Creek Area Plan. Prepared for: Yolo County Administrator's Office, Woodland, CA.

Tricolored blackbird portal. [Online]: https://tricolor.ice.ucdavis.edu/.

Yolo County. 2009. 2030 Countywide General Plan. Yolo County Planning and Public Works Department, Woodland, CA.

Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan. [Online]: www.yolohabitatconservancy.org/.

Cultural Resources

DeOliveira, Lauren, and James Allan. 2021. Confidential Technical Memorandum, Cultural Resources Pedestrian Survey for the Gibson Ranch Solar Project, (Confidential Appendix D). August 9.

Yolo County. 2009. 2030 Countywide General Plan. Conservation and Open Space Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=14464. Accessed August, 2021.

Energy Resources

Yolo County. 2009a. 2030 Countywide General Plan. Conservation and Open Space Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=14464. Accessed March 29, 2021.

_____. 2009b. 2030 Countywide General Plan. Land Use and Community Character Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=68781. Accessed March 29, 2021.

_____. 2009c. 2030 Countywide General Plan. Public Facilities and Services Element. [Online]: https://www. yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed September 9, 2021.

Geology and Soils

CDWR (California Department of Water Resources). 2021. Groundwater Level Report. [Online]: https://water.ca.gov/Programs/Groundwater-Management/Data-and-Tools. Accessed April 2021.

CGS (California Geological Survey). 2021. Earthquake Zones of Required Investigation. [Online]: https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed April 2021.

Finger, Kenneth L. 2021. Paleontological Records Search: Gibson Solar Farm Project, Yolo County. April 23, 2021.

LSA Associates, Inc. 2009. 2030 Countywide General Plan EIR – Geology, Soils, Seismicity and Mineral Resources. [Online]: https://www.yolocounty.org/home/showdocument?id=9173. Accessed April 2021.

UC Davis (University of California, Davis) and NRCS (Natural Resources Conservation Service). 2021. [Online]: https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed April 2021.

USGS (United States Geological Survey). 2021. U.S. Quaternary Faults. USGS Geologic Hazards Science Center. [Online]: https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf. Accessed April 2021.

Yolo County. 2009a. 2030 Countywide General Plan. Conservation and Open Space Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=14464. Accessed April 2021.

_____. 2009b. 2030 Countywide General Plan. Health and Safety Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=14463. Accessed April 2021.

_____. 2021. USDA Soils GIS Layer. [Online]: https://gis.yolocounty.org/ext/rest/services/GISViewer/LandInformation/FeatureServer/2. Accessed February 2021.

Greenhouse Gas Emissions

ARB (Air Resources Board). 2008. Climate Change Scoping Plan: A Framework for Change. Pursuant to AB 32 the California Global Warming Solutions Act of 2006. December 2008.

_____. 2017. California's 2017 Climate Change Scoping Plan. The strategy for achieving California's 2030 greenhouse gas target. November.

_____. 2020. California Greenhouse Gas Inventory for 2000-2018 — by Category as Defined in the 2008 Scoping Plan.

OEHHA (Office of Environmental Health Hazard Assessment, California Environmental Protection Agency). 2018. Indicators of Climate Change in California. May.

Yolo County. 2009. 2030 Countywide General Plan. [Online]: https://www.yolocounty.org/government/general-government-departments/county-administrator/general-plan/adopted-general-plan. Accessed September 9, 2021.

_____. 2011. General Plan Amendment #2011-02 Climate Action Plan. [Online]: https://www. yolocounty.org/home/showpublisheddocument/16368/635289380535200000. Accessed September 9, 2021.

Hazards and Hazardous Materials

Cal/EPA (California Environmental Protection Agency). 2021. Cortese List Data Resources [Online]: https://calepa. ca.gov/sitecleanup/corteselist/. Accessed April 2021.

CAL FIRE (California Department of Forestry and Fire Protection). 2021. Yolo County Fire Hazard Severity Zone Maps. Map of CAL FIRE's Fire Hazard Severity Zones in State Responsibility Areas – Yolo County [Online]: https://osfm.fire.ca.gov/media/6855/fhszs_map57.pdf. Accessed April 2021.

Hydrology and Water Quality

FEMA (Federal Emergency Management Agency). 2010. Flood Insurance Rate Map (FIRM) Panel 06113C0411G, Yolo County, California, effective date June 18, 2010. [Online]: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html? id=8b0adb51996444d4879338b5529aa9cd&extent=-122.02892093025694,38.66135807606082,-121.94583682381175,38.69486076381077

_____. 2021. National Flood Hazard Layer (NFHL) Viewer. [Online]: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed May 2021.

GEI Consultants, Inc., 2021. Public Draft Groundwater Sustainability Plan for Yolo Subbasin Groundwater Agency, Chapter 1 (March) and Chapter 2 (April). [Online]: https://www.yologroundwater. org/yolo-groundwater-sustainability-plan. Accessed July 2021.

Gibson Renewables, LLC. 2021. Responses to Data Requests Set 2. June 29.

SWRCB (California State Water Resources Control Board), 2021. Industrial Stormwater General Permit Map Tool, impaired water bodies and watershed boundaries layers. [Online]: https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=d2e422cdf19148cfa36f40e075b9889e. Accessed July 2021.

UC Davis (University of California, Davis). 2021. Soil Agricultural Groundwater Banking Index (SAGBI). [Online]: https://casoilresource.lawr.ucdavis.edu/sagbi/. Accessed July 2021.

Yolo County. 2009. 2030 Countywide General Plan, Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed July 2021.

_____. 2014. Yolo Bypass Drainage and Water Infrastructure Improvement Study: Final Report. [Online]: https://www.yolocounty.org/home/showdocument?id=23985. Accessed July 2021.

Land Use and Planning

Yolo County. 2009a. 2030 Countywide General Plan. Land Use and Community Character Element. [Online]: https://www.yolocounty.org/government/general-government-departments/county-administrator/general-plan/adopted-general-plan. Accessed April 10, 2021.

_____. 2009b. 2030 Countywide General Plan. Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed September 14, 2021.

_____. 2009c. 2030 Countywide General Plan. Vision and Principles Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14469/635289380535200000. Accessed September 14, 2021.

_____. 2011. Yolo County Climate Action Plan. Executive Summary, p. iv. [Online]: https://www.yolocounty.org/government/general-government-departments/community-services/planning-division/climate-action-plan. Accessed September 14, 2021.

_____. 2020. Very Large Solar Energy Facilities Ordinance, Section 8.2-1105, Article 11 of Yolo County Zoning Regulations, Yolo County Code of Ordinances. [Online]: https://codelibrary.amlegal.com/codes/yolocounty/latest/yolo/0-0-0-29931. Accessed April 10, 2021.

Mineral Resources

CCRMP (Cache Creek Resources Management Plan). 2019. [Online]: https://www.yolocounty.org/home/showpublisheddocument/62104/637178817226200000. Accessed April 14, 2021.

DOC (Department of Conservation). 2019. Well Finder CalGEM GIS. [Online]: https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-121.82564/38.58233/12. Accessed March 29, 2021.

_____. 2016. Mines Online. [Online]: https://maps.conservation.ca.gov/mol/index.html. Accessed March 29, 2021.

_____. 2000. State Mining and Geology Board. Guidelines for Classification and Designation of Mineral Lands. [Online]: https://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf. Accessed March 29, 2021.

Yolo County. 2009. 2030 Countywide General Plan. Conservation and Open Space Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument?id=14464. Accessed March 29, 2021.

Noise

FTA (Federal Transit Authority). 2018. Transit Noise and Vibration Impact Assessment Manual. [Online]: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed April 2021.

Gibson Renewables, LLC. 2020. Land Use Permit Application for Gibson Solar Farm 20MWac Solar Photovoltaic Electricity Generating Facility and 6.5MWac/26MWh Battery Energy Storage System. December 2020.

_____. 2021. Gibson Solar Farm Data Responses. April.

NoiseMeters. 2021. Ldn, Lden, CNEL – Community Noise Calculators. [Online]: https://www.noisemeters.com/apps/ldn-calculator/. Accessed April.

USEPA (United States Environmental Protection Agency). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. March.

Yolo County. 2009. 2030 Countywide General Plan. [Online]: https://www.yolocounty.org/government/general-government-departments/county-administrator/general-plan/adopted-general-plan. Accessed April 2021.

Population and Housing

CDF (California Department of Finance). May 2021. E-1 Population Estimates for Cities, Counties, and the State — January 1, 2020 and 2021. [Online]: https://dof.ca.gov/Forecasting/Demographics/Estimates/e-1/. Accessed September 21, 2021.

Public Services

CAL FIRE (California Department of Forestry and Fire Protection). 2007. Yolo County FHSZ Map. [Online]: https://osfm.fire.ca.gov/media/6855/fhszs_map57.pdf. Accessed April 5, 2021.

Data Center Frontier. 2019. New NFPA Battery Standard Could Impact Data Center UPS Designs. [Online}: https://datacenterfrontier.com/new-nfpa-battery-standard-could-impact-data-center-ups-designs/#:~:text=The%20NFPA%20855%20standard%20calls%20for%20%E2%80%9Clarge-scale%20fire,offers%20certification%20and%20safety%20testing%20for%20industrial%20products. Accessed September 15, 2021.

NRECA (National Rural Electric Cooperative Association). 2018. Advisory on Substation Protection & Control Batteries: The Proposed Fire Standard for Energy Storage Systems. [Online]: https://www. cooperative.com/programs-services/bts/Documents/Advisories/Advisory-NFPA-855-Standard-August-2018.pdf. Accessed September 15, 2021.

UL (Underwriters Laboratories). 2021. Fire Research and Development Technical Report: UL 9540A Installation Level Tests with Outdoor Lithium-ion Energy Storage System Mockups. [Online]: https://collateral-library-production.s3.amazonaws.com/uploads/asset_file/attachment/32982/UL9540AInstallationDemo_Report_Final_4-12-21.pdf. Accessed September 15, 2021.

Yolo County. 2009. 2030 Countywide General Plan: Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed April 5, 2021.

_____. 2019. Yolo County GIS Viewer. [Online]: https://yolo.maps.arcgis.com/apps/webappviewer/index.html?id=07aafdb9df8b40fea378723de601c69b&extent=-13651962.5683,4642419.391,-13505203.474,4708996.0427,102100. Accessed April 5, 2021.

Yolo County Sheriff's Office. 2021. [Online]: https://www.yolocountysheriff.com/. Accessed April 5, 2021.

Recreation

Yolo County. 2009. 2030 Countywide General Plan, Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed September 14, 2021.

_____. 2021a. Parks GIS Layer. [Online]: https://yolo.maps.arcgis.com/apps/webappviewer/index.html?id=07aafdb9df8b40fea378723de601c69b&extent=-13651962.5683%2C4642419.391%2C-13505203.474%2C4708996.0427%2C102100. Accessed September 14, 2021.

_____. 2021b. Parks. [Online]: https://www.yolocounty.org/government/general-government-departments/parks. Accessed September 14, 2021.

Transportation

Caltrans (California Department of Transportation). 2020. Vehicle Miles Traveled-Focused Transportation Impact Study Guide. May 20. [Online]: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf.

Gibson Renewables. 2020. Land Use Permit Application for Gibson Solar Farm. December.

Yolo County. 2009. 2030 Countywide General Plan, Circulation Element. Adopted by the Yolo County Planning and Public Works Department, Resolution 09-189. November 10. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14467/635289380535200000.

OPR (California Office of Planning and Research). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. December. [Online]: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed September 8, 2021

YCTD (Yolo County Transportation District). 2021. "215WB, Cache Creek Casino." [Online]: https://moovitapp.com/index/en/public_transit-line-215WB-Sacramento_CA-1569-853009-479955-0. Accessed July 1, 2021.

Yolo County Transportation Advisory Committee. 2013. County of Yolo Bicycle Transportation Plan, Bicycle Routes and Priorities. March. [Online]: https://www.yolocounty.org/home/showdocument?id=2538. Accessed September 14, 2021.

Utilities and Service Systems

CEC (California Energy Commission). 2021. California Electric Transmission Lines. [Online]: https://cecgis-caenergy.opendata.arcgis.com/datasets/california-electric-transmission-lines/explore? location=38.633743%2C-121.761725%2C10.76. Accessed September 15, 2021.

CalRecycle. 2021. Mandatory Commercial Recycling. [Online]: https://www.calrecycle.ca.gov/recycle/commercial. Accessed September 14, 2021.

Yolo County. 2009. 2030 Countywide General Plan, Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed September 14, 2021.

Wildfire

CAL FIRE. 2021. Fire Hazard Severity Zones (FHSZ) Viewer. [Online]: https://egis.fire.ca.gov/FHSZ/. Accessed September 15, 2021.

Yolo County. 2009a. 2030 Countywide General Plan, Health and Safety Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14463/635289380535200000. Accessed September 14, 2021.

_____. 2009b. 2030 Countywide General Plan, Public Facilities and Services Element. [Online]: https://www.yolocounty.org/home/showpublisheddocument/14466/635289380535200000. Accessed September 15, 2021.

Appendix C

Supplemental Biological Resources Assessment

Supplemental Biological Resources Assessment for the Gibson Solar Farm, Yolo County

Prepared for:
Aspen Environmental
8801 Folsom Blvd., Suite 275
Sacramento, CA 95826
Contact: John Carrier
Phone: (916) 235-9197

Prepared by:

Estep Environmental Consulting
3202 Spinning Rod Way
Sacramento, CA 95833
Contact: Jim Estep
Phone: 916-921-2515

August 6, 2021

Introduction

Background

Gibson Renewables, LLC is proposing to construct and operate a 20-megawatt (MW) photovoltaic ("PV") solar facility, the Gibson Solar Farm (project) on approximately 147 acres of farmland near the Town of Esparto in unincorporated Yolo County (Figure 1). The proposed project is currently undergoing environmental review pursuant to the California Environmental Quality Act (CEQA) with Yolo County serving as the lead agency. This biological resource assessment is supplemental to the Biological Resources Report Prepared by Sol Ecology (2021) and was prepared consistent with the requirements of CEQA and intended to be incorporated into the full CEQA assessment for the proposed project.

Although the proposed project is within the service area of the Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP), solar energy projects are not Covered Activities under the HCP/NCCP. Therefore, the project is not subject to review by the Yolo Habitat Conservancy (the HCP/NCCP Implementing Entity), the payment of fees, or the application of Avoidance and Minimization Measures pursuant to the HCP/NCCP.

Location and Setting

The 147-acre project site is located on a single parcel (049-100-035) along the south side of State Route 16 – the northern border of the project – 0.55 miles west of the town of Madison and 1.2 miles east of the Town of Esparto (Figure 2). County Road 89 is 0.85 miles east of the eastern border of the project site, and County Road 23 is 0.44 miles south of the southern border. Occurring within an agricultural landscape, the entire project site is cultivated farmland and is surrounded on all sides by cultivated land.

Project Description

Construction and Operation

The proposed project includes the installation of solar arrays to generate 20 MW of renewable electrical energy; a battery energy storage system (BESS); other ancillary support features such as inverters, transformers, and other electrical equipment; and a 21kV distribution line to interconnect to the Pacific Gas & Electric (PG&E) electrical distribution system and transfer the energy the PG&E Madison Substation. The PV modules will be mounted on single-axis tracking support structures arranged in a north-south configuration and rotate from east to west to track the sun's path throughout the day. The parallel array rows will be separated and spaced 13' 7" apart (from panel edge to panel edge) to minimize inter-row shading of the sun. The galvanized steel support structures will be mounted on a foundation of steel beams directly embedded into the ground to a depth of five to eight feet depending on loading and soil conditions. The project includes 12 equally spaced and configured array cells, each separated by 20-foot service roads. A six-foot-tall chain-link security fence will be installed around the perimeter of the project site.

Figure 1
Regional Location of the Gibson Solar Project

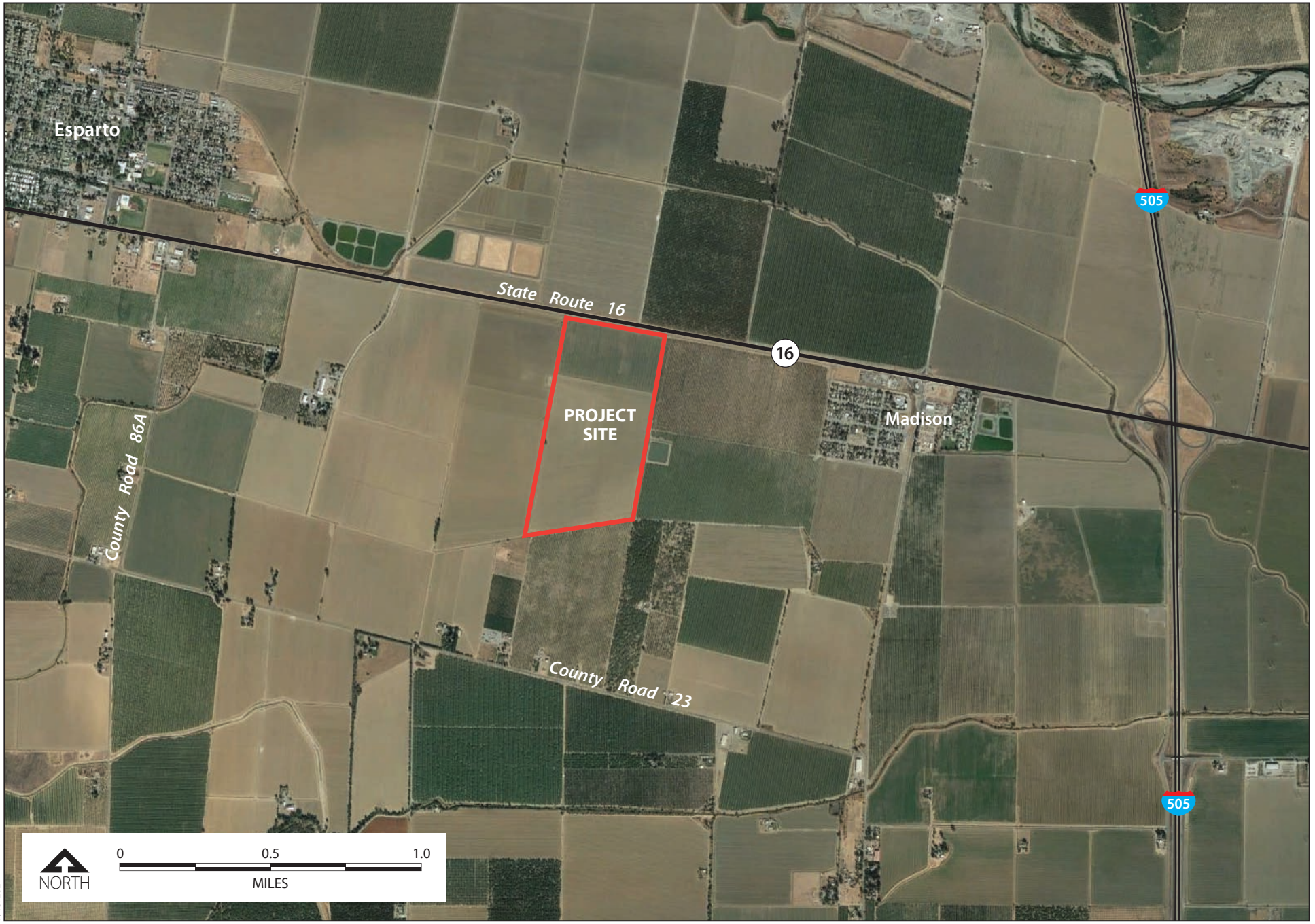


Figure 2
Location of the Gibson Solar Project

Refer to the Land Use Permit Application (Gibson Renewables, LLC 2020) or the Initial Study for a detailed project description including associated Figures and site plan.

Site Management

Using the principals of agrivoltaics (Goetzberger and Zastrow, 1982; Dolezal et al. 2021) the substrate below the panels will be planted with grasses, forbs, and a variety of pollinator plant species, providing a food resource for 10 apiaries established across the project site. Agrivoltaics is the practice of agriculture in and around large-scale solar PV farms. It focuses on a dual-use of arable land for solar energy production and plant cultivation. It creates a symbiotic relationship where both the crops and the solar panels perform better. It also helps save water. The low-growing native plants on a solar/pollinator agrivoltaic project hold the topsoil on-site and improve it over the life of the project. Deep root systems can bring minerals and nutrients to the topsoil and over time vastly improve tilth. Pollinators, especially bees, play a fundamental role in agriculture by servicing pollination dependent crops and maintain populations of both wild and cultivated species of plants that are considered useful for purposes other than food.

For this project, the applicant is proposing adding apiary uses. The project would support native pollinators through native reseeding under and between the solar panels while raising honeybees agriculturally. The bees would be used to pollinate the nearby orchards along with other crops. The apiary operations would involve transporting beehives to the project site twice a year (once in March/April and once in November/December) to assist with pollination and to further split the colonies to establish new hives and raise queen bees. The area required for temporary apiary operations would be approximately 0.5 acre.

To encourage pollinator habitat and control vegetation growth, grazing would occur underneath the modules where and when necessary. The applicant has proposed a three-foot minimum height above the ground surface at the lowest edge of the PV modules; at their highest point of the solar tracking during the day, the PV modules will be less than nine feet above the ground surface. When combined with the interrow access/spacing to enable vegetation management, this will be more than sufficient space to allow for grazing in addition the proposed pollinator habitat.

Objectives

This biological resources assessment was prepared to supplement the Biological Resources Report prepared by Sol Ecology (2021) and to provide Yolo County with a summary of biological resources, including the occurrence or potential for occurrence of special-status species, within and near the 147-acre project site; and to provide an assessment of potential biological resource impacts resulting from the installation of the proposed solar project, along with recommendations to minimize or avoid significant impacts that can be referenced by or integrated into a CEQA document.

Regulatory Framework

Several state and federal laws and regulations are relevant to the proposed project. Each is briefly described below.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts of proposed projects be reduced to a less-than-significant level through adoption of feasible avoidance, minimization, or mitigation measures unless overriding considerations are identified and documented.

During the CEQA review process, environmental impacts are assessed and a significance determination provided based on pre-established thresholds of significance. Thresholds are established using guidance from CEQA, particularly Appendix G of the State CEQA guidelines and CEQA Section 15065 (Mandatory Findings of Significance). CEQA guidance is then refined or defined based on further direction from the lead agency.

Consistent with Appendix G of the State CEQA guidelines, a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in one or more of the following:

- Substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife (CDFW) or US Fish and Wildlife Service (USFWS);
    - A substantial adverse effect on a special-status wildlife species is typically defined as one that would:
        - Reduce the known distribution of a species,
        - Reduce the local or regional population of a species,
        - Increase predation of a species leading to population reduction,
        - Reduce habitat availability sufficient to affect potential reproduction, or
        - Reduce habitat availability sufficient to constrain the distribution of a species and not allow for natural changes in distributional patterns over time.
- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or interference with the use of native wildlife nursery sites.
    - Substantial interference with resident wildlife movement is typically defined as obstructions that prevent or limit wildlife access to key habitats, such as water sources or foraging habitats, or obstructions that prohibit access through key movement corridors considered important for wildlife to meet needs for food, water, reproduction, and local dispersal.
    - Substantial interference with migratory wildlife movement is typically defined as obstructions that prevent or limit regional wildlife movement through the project

area to meet requirements for migration, dispersal, and gene flow that exceed the defined baseline condition.

Consistent with CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has 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 an endangered, rare or threatened species.

CEQA defines the significance of an impact on a state-listed species based on the following:

- Appendix G of the State CEQA guidelines states that a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in "substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS"; and

- CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has the potential to "substantially reduce the number or restrict the range of an endangered, rare or threatened species".

California Fish and Game Code 3503.5 (Birds of Prey)

Section 3503.5 of the Fish and Game Code prohibits the take, possession, or destruction of any birds of prey or their nests or eggs. The California Department of Fish and Wildlife may issue permits authorizing take pursuant to the California Endangered Species Act.

Yolo County General Plan

The Yolo County General Plan includes numerous policies regulating and emphasizing the protection of natural resources and agricultural lands that provide wildlife habitat. Those most relevant to the proposed project include the following:

- Policy AG-1.5. Strongly discourage the conversion of agricultural land for other uses. No lands shall be considered for re-designation from Agricultural or Open Space to another land use designation unless all of the following findings can be made:
    A. There is a public need or net community benefit derived from the conversion of the land that outweighs the need to protect the land for long-term agricultural use.
    B. There are no feasible alternative locations for the proposed project that are either designated for non-agricultural land uses or are less productive agricultural lands.
    C. The use would not have a significant adverse effect on existing or potential agricultural activities on surrounding lands designated Agriculture.

- Policy AG-1.6. Continue to mitigate at a ratio of no less than 1:1 the conversion of farm land and/or the conversion of land designated or zoned for agriculture, to other uses.
- Policy CO-2.1. Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.
- Policy CO-2.3. Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.
- Policy CO-2.9. Protect riparian areas to maintain and balance wildlife values.
- Policy CO-2.22. Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.
- Policy CO-2.38. Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds).
- Policy CO-2.41. Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.

Methods

Pre-Survey Investigation

Prior to conducting the site visit, available information regarding biological resources on or near the project site was gathered and reviewed. Sources included:

- California Natural Diversity Data Base (2020)
- Yolo County General Plan (Yolo County 2009)
- Yolo County HCP/NCCP (www.yolohabitatconservancy.org/)
- eBird (online database of bird observations) (https://ebird.org/home)
- Tricolored blackbird portal (https://tricolor.ice.ucdavis.edu/)
- Calflora (https://www.calflora.org/)
- Estep 2020 (Distribution, Abundance, and Habitat Associations of the Swainson's Hawk in Yolo County)
- Tompkins 2017 (Technical Studies and 20-year Retrospective for the Cache Creek Area Plan)

- Sol Ecology 2021 (Biological Resources Report for the Gibson Solar Farm)
- Other local research, surveys, and environmental documents

Aerial photographs and land use/vegetation maps of the project site and surrounding area were also reviewed.

Field Survey and Assessment

A field survey and site assessment were conducted on April 27, 2021 from approximately 1000 hours to 1500 hours. The survey was conducted by walking the perimeter of the project and documenting land cover, natural communities, and plant and wildlife occurrences. The survey also extended approximately 0.25 miles from the project boundary to determine the presence of special-status species and other natural communities or wildlife habitats that could be potentially indirectly impacted by the project. Land uses, natural communities, and wildlife habitats were inspected, mapped, and photographed; wildlife species occurrences were recorded using binoculars and spotting scope, and occurrences and potential habitat for each special-status species was documented.

The survey was conducted to supplement the survey conducted on September 9, 2020 during the initial biological resource assessment of the project (Sol Ecology 2021).

Results

General Characteristics

Physiography

Located with the interior agricultural region of west-central Yolo County, and approximately 2.5 miles east of the low-elevation foothills of the inner Coast Range, the project site and surrounding landscape is generally flat, with elevation in the immediate vicinity ranging from 156 to 171 feet above mean sea level and with an imperceptible elevational decrease toward the east and northeast. Other than irrigation channels extending along the northern, southern, and eastern boundaries of the site, and a small berm along a portion of the eastern boundary, there are no discernable topographic features. The climate in the vicinity of the project site is mild with average annual maximum temperature of 74.6 degrees Fahrenheit and average annual minimum temperature of 47.6 degrees Fahrenheit, with winter rains and dry summers, and an average annual rainfall of approximately 20 inches.

Land Use

The project site consists of two fields that are entirely cultivated and used for production of hay, grain, and row crops. The approximately 40-acre northern field was prepared for tomatoes but not yet planted. In previous years, including 2020, this field was in alfalfa (Sol Ecology 2021). The approximately 107-acre southern field was planted recently with sunflowers. Irrigation canals or ditches extended along the southern, northern, and eastern borders of the fields, and are

likely seasonally constructed along the western boundary and between the two fields as needed. An irrigation pump and small basin also occurs in the extreme southwest corner of the project site. There is also a 2.5-acre reservoir on the adjacent property along the eastern boundary of the project (Figure 3).

The project site occurs within an intensively cultivated landscape. Neighboring lands include almond orchards on the east and south, wheat and idle field on the west, and tomatoes and almond orchard on the north (Figure 4). The surrounding landscape is similar with a matrix of orchards, hay crops, and annually or seasonally rotated field crops.

Biological Communities

Biological communities on the project site consist entirely of irrigated agriculture (i.e., cultivated fields) and the narrow perimeter areas considered incidental to agriculture including the surrounding irrigation ditches and dirt field borders and access roads. Immediately adjacent and surrounding lands are also entirely cultivated farmland. There are no sensitive biological communities or unique wildlife habitats on or adjacent to the project site. Sol Ecology conducted a wetland assessment and formal wetland delineation on September 9, 2020 (Sol Ecology 2021). Although they identified wetland and non-wetland waters, because these were established as part of the normal and ongoing agricultural activities (e.g., irrigation conveyance ditches), they are not subject to regulation by state or federal agencies.

Irrigated Agriculture

Other than the perimeter ditches, the entire project area consists of irrigated agriculture (Figure 3). Both fields are in production for the 2021 growing season. The smaller northern field was unplanted at the time of the survey but appears to be prepared for tomatoes (Plate 1). The larger southern field was recently planted with sunflower (Plate 2). Although supporting a relatively low diversity of wildlife use, this land cover is essential for species that have adapted to agricultural landscapes in the Central Valley. These fields support increasing small rodent populations as the vegetation matures and provides cover, which in turn provides foraging habitat for several local raptor species, including red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), and great-horned owl (*Bubo virginianus*). When planted with hay crops, such as alfalfa, these fields also support an abundance of insect prey, an important food resource to herons, egrets, waterfowl, and many other waterbirds and raptors, particularly when the fields are flood irrigated. Adjacent fields are also irrigated agriculture and include rotated cropland to the west and north and almond orchards to the south and east (Plates 3 and 4).

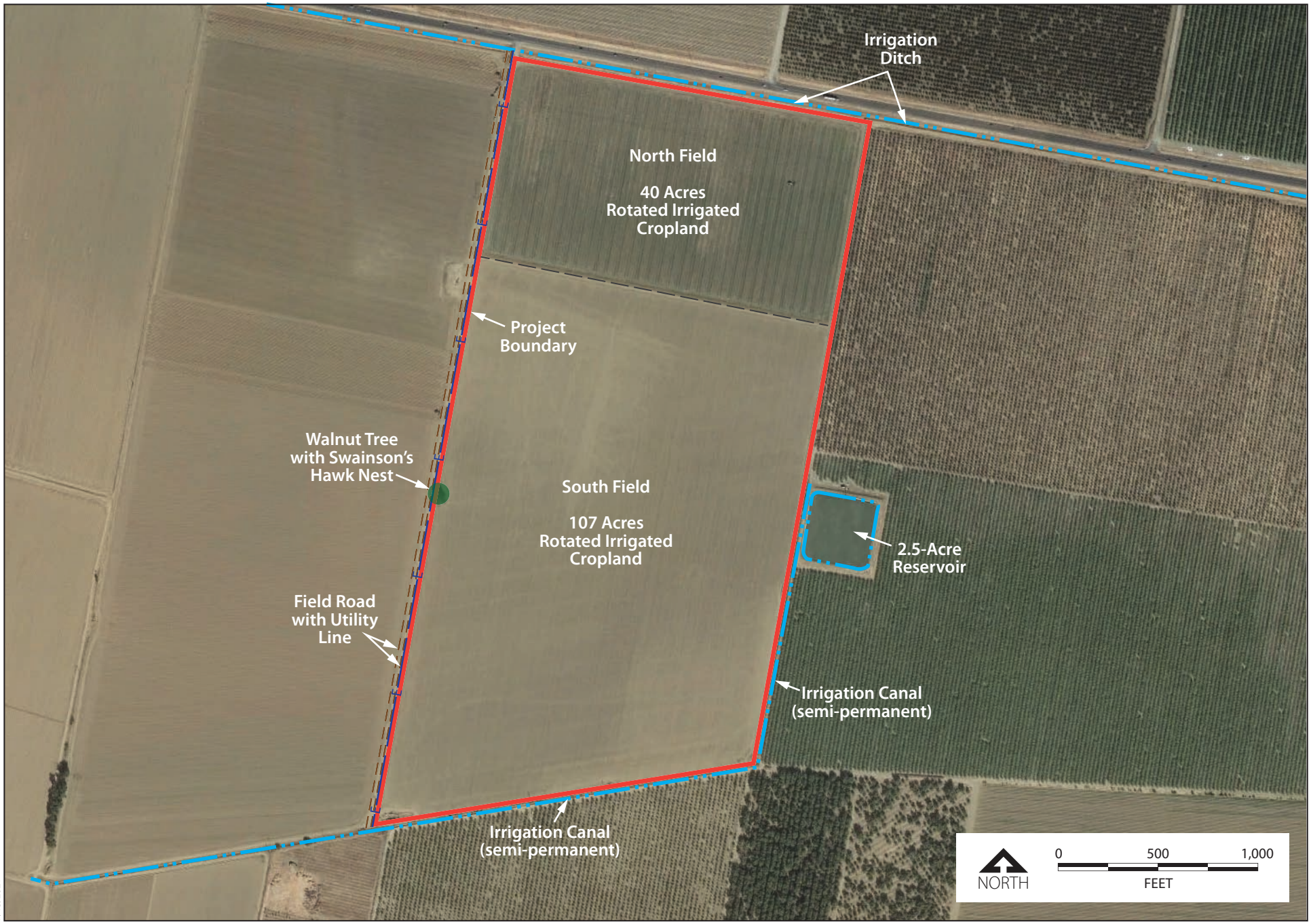


Figure 3
Land Use on the Gibson Solar Project

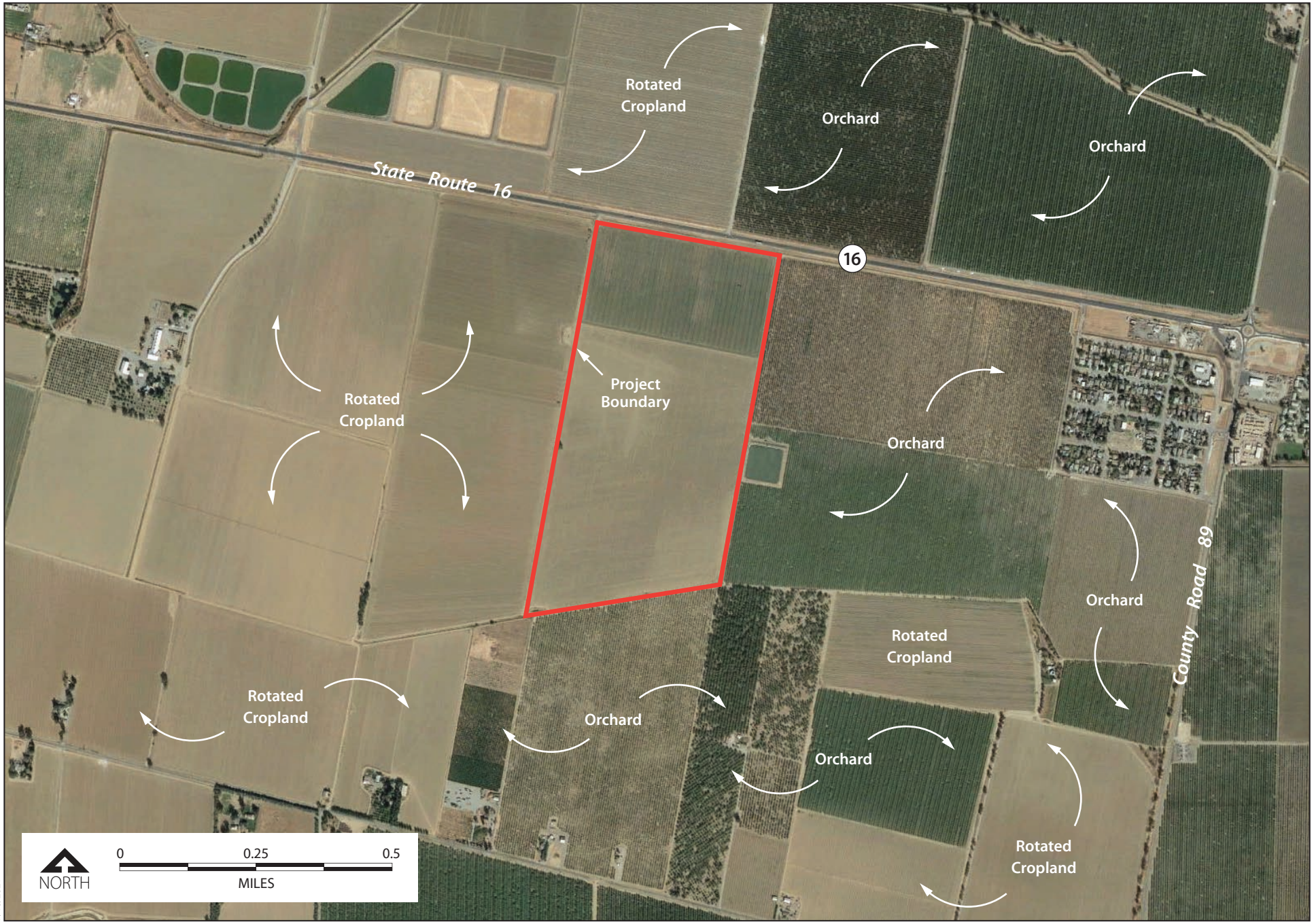


Figure 4
Land Use surrounding the Gibson Solar Project

Plate 1. Looking east toward the northern field. This field was unplanted at the time of the survey, but appears to be prepared for a tomato crop.

Plate 2. Looking north toward the southern field recently planted with sunflower.

Plate 3. Looking west from the western border of the project site toward adjacent idle field.

Plate 4. Looking south from the southern border of the project site toward adjacent orchard.

Incidental to Agriculture

Irrigation canals or ditches, field access roads, adjacent ruderal edges, and utility corridors occur around the perimeter of the project (Plates 5 through 8). These are not cultivated areas but are considered incidental to agricultural operations. Permanent or semi-permanent irrigation ditches can provide important aquatic and adjacent upland habitat, particularly when vegetation is allowed to grow and is maintained along the perimeter of the ditch. A variety of small resident and migratory birds inhabit these areas. They also provide refugia habitat for small rodents that can repopulate adjacent fields during the following growing season. Small, temporary irrigation ditches usually provide limited value but may still have incidental or temporary value to wildlife as movement corridors, cover, or a water source.

Plate 5. Looking east along irrigation canal on the southern border of the project. This concrete-lined canal is considered a permanent water conveyance feature. The area referred to as incidental to agriculture includes the canal, the dirt access road along the field border, and the ruderal area between the canal and the dirt road.

Plate 6. Looking north along the irrigation canal bordering the eastern boundary of the project. This is also a concrete-lined permanent water conveyance feature.

Plate 7. Looking south along the western field border with a utility line and farm access road, but no irrigation ditch.

Plate 8. Looking east along the irrigation ditch bordering the northern boundary of the project site and State Route 16. This is a temporary ditch which is cut and filled as needed during the growing season, and thus supports little to no vegetation.

Wetlands. Irrigation canals and ditches may also support wetland values and function, particularly along permanent canals with frequent flows and where wetland vegetation has developed. A formal wetland delineation was conducted at the time of the September 9, 2020 site visit (Sol Ecology 2021). The delineation of wetland boundaries was based on the presence/absence of indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The boundaries of non-wetland waters were identified by locating the ordinary high-water mark Biologists identified wetland and non-wetland waters, however, because the wetland and non-wetland waters were established as part of normal and ongoing agricultural activities, the wetland and non-wetland waters found on the site are not potentially subject to regulation by the federal government (U.S. Army Corps of Engineers [USACE]) and the state of California (Regional Water Quality Control Board [RWQCB] and CDFW) so long as agricultural activities are ongoing and not abandoned. The placement and management of the solar project is not considered incompatible with ongoing agriculture and irrigation functions provided by the irrigation canals on and off of the project site. Further, the irrigation canals around the perimeter of the project site will not be abandoned nor will their function otherwise be affected by the proposed project.

Wildlife Use

Several species were detected within the irrigated agriculture and adjacent irrigation ditches during the field survey including great blue heron (*Ardea Herodias*), turkey vulture *Cathartes aura*), Swainson's hawk, common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), Scrub jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), black-tailed jackrabbit (*Lepus californicus*), and sign of California ground squirrel (*Otospermophilus beecheyi*), and pocket gopher (*Thomomys bottae*). However, with sparse weedy vegetation along the field edges and the recently cultivated fields, the project site supports marginal habitat conditions and low diversity and abundance of wildlife.

Special-status Species

Special-status species are generally defined as species that are assigned a status designation indicating possible risk to the species. These designations are assigned by state and federal resource agencies (e.g., CDFW, U.S. Fish and Wildlife Service) or by private research or conservation groups (e.g., National Audubon Society, California Native Plant Society). Assignment to a special-status designation is usually done on the basis of a declining or potentially declining population, either locally, regionally, or nationally. The extent to which a species or population is at risk usually determines the status designation. The factors that determine risk to a species or population generally fall into one of several categories, such as habitat loss or modification affecting the distribution and abundance of a species; environmental contaminants affecting the reproductive potential of a species; or a variety of mortality factors such as hunting or fishing, interference with man-made objects (e.g., collision, electrocution, etc.), invasive species, or toxins. For purposes of this biological resource assessment, special-status species are defined as follows:

- Species that are listed, proposed, or candidates for listing under the federal Endangered Species Act (50 CFR 17.11 – listed; 61 FR 7591, February 28, 1996 - candidates);
- Species that are listed or proposed for listing under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.);
- Species that are designated as Species of Special Concern by CDFW;
- Species that are designated as Fully Protected by CDFW (Fish and Game Code, Section 3511, 4700, 5050, and 5515;
- Species included on Lists 1B or 2 by the California Native Plant Society;
- Species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380).

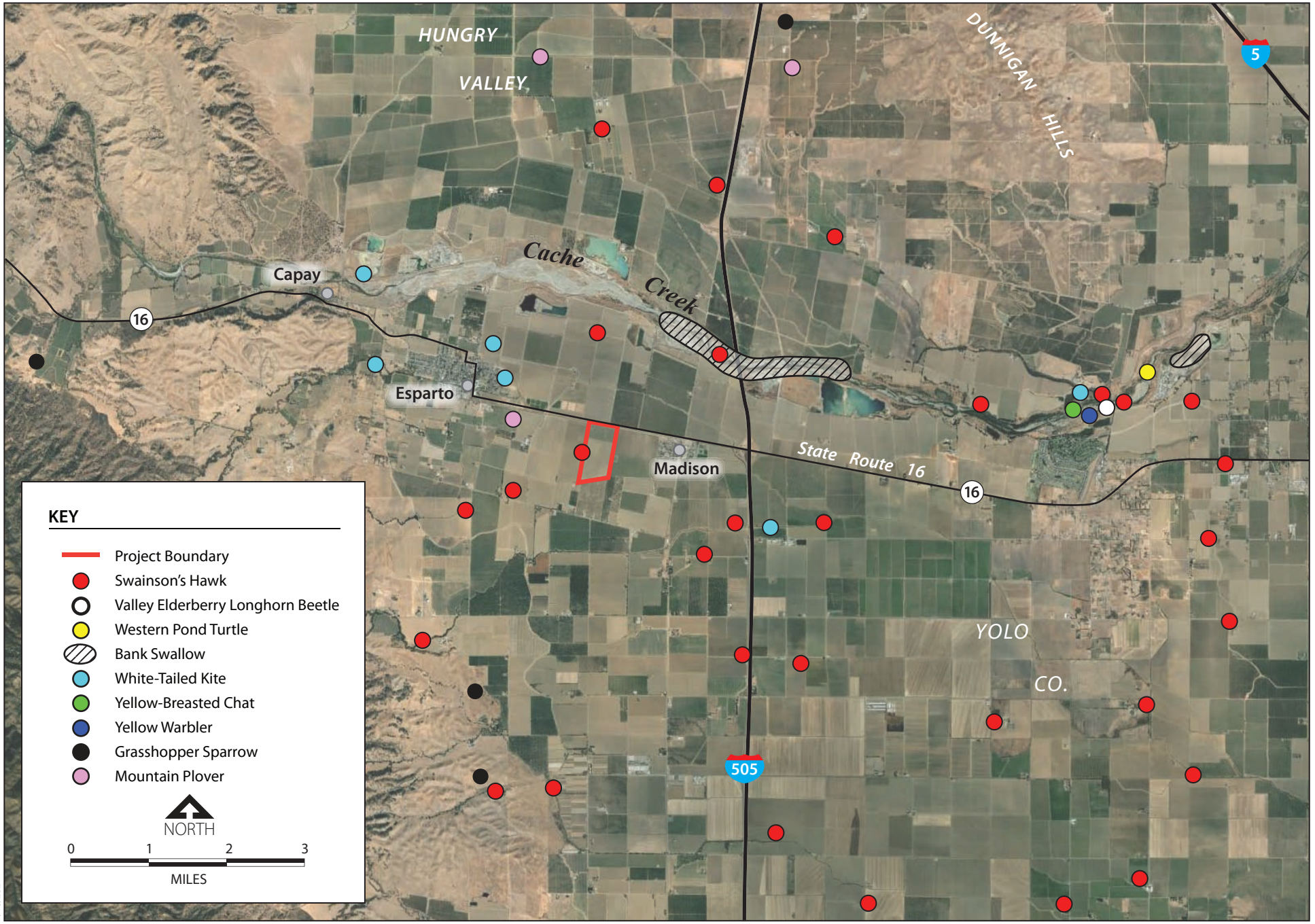
A records search of CDFW's California Natural Diversity Data Base (CNDDB), and other sources of occurrence data (e.g., eBird, Tricolored Blackbird Portal, other survey efforts) provide the initial reference for special-status species occurrences on and around the project site. However, a CNDDB records search encompasses a much larger area than the project site and

does not address the presence/absence of suitable habitat within the project site. Instead, it is used as initial guidance to indicate the species that have been observed or have the potential to occur within the general area of the project site and to focus the next step in the assessment, habitat availability. Potential for species to occur is then based on the presence/absence of suitable habitat on or in the vicinity of the project site. Finally, specific surveys within suitable habitat determines the actual presence/absence of potentially occurring species.

Table 1 lists the special-status species with potential to occur in the vicinity of the project site based on existing information about their local and regional distribution and species lists provided by CNDDB and other sources. The table also describes habitat associations; the presence/absence of suitable habitat; and whether or not the species has been reported from the project site or observed during the field survey. Figure 5 illustrates the location of reported special-status species occurrences in the vicinity of the project site for each potentially-occurring species. Each species in Table 1 with potential to occur on or adjacent to the project site is described in more detail below including habitat associations, the presence/absence of suitable habitat, and reported occurrences from existing records and this survey.

Table 1. Special-status species with potential to occur in the vicinity of the Gibson Solar Energy project site, Yolo County. Green highlighted species are those with potential to occur on the project site.

Species	Status State/ Federal	Habitat Association	Habitat Present on or Adjacent to the Project site	Observed Onsite During Survey	Reported Occurrence on the Project site
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	-/T	Elderberry shrubs	No	No	No
Vernal pool fairy shrimp *Branchinecta lynchi*	-/T	Vernal pools	No	No	No
Vernal pool tadpole shrimp *Lepidurus packardi*	-/E	Vernal pools	No	No	No
Western pond turtle *Actinemys marmorata*	CSC/-	Streams, ponds, canals	No	No	No
Giant garter snake *Thamnophis gigas*	E/E	Emergent wetland, canals, rice fields	No	No	No
Northern harrier *Circus hudsonius*	CSC/-	Grasslands, pastures, fields, seasonal wetland	Yes	No	No
White-tailed kite *Elanus leucurus*	FP/-	Nests in trees, hunts in grassland/farmland/wetland	Yes	No	No
Swainson's hawk *Buteo swainsoni*	T/-	Nests in trees, hunts in grassland and farmlands	Yes	Yes	No
mountain plover *Charadrius montanus*	CSC/-	Winter range – grasslands, plowed fields	Yes (winter)	No	No
Burrowing owl *Athene cunicularia*	CSC/-	Grasslands, field edges with ground squirrel activity	Yes	No	No
Short-eared owl *Asio flammeus*	CSC/-	Grasslands, prairies, marshes	No	No	No
Bank swallow *Riparia riparia*	T/-	Vertical cut banks along streams	No	No	No
Loggerhead shrike *Lanius ludovicianus*	CSC/-	Grasslands, agricultural areas	Yes	No	No
Yellow-breasted chat *Icteria virens*	CSC/-	Riparian thickets with willow near waterways for nesting.	No	No	No
Yellow warbler *Setophaga petechia brewsteri*	CSC/-	Riparian forests, montane shrub in open conifer forests.	No	No	No



SOURCES: CNDDB 2020; eBIRD; Estep 2020; Tompkins 2017.

Figure 5
Special-Status Species Occurrences in the Vicinity of the Gibson Solar Project

Species	Status State/ Federal	Habitat Association	Habitat Present on or Adjacent to the Project site	Observed Onsite During Survey	Reported Occurrence on the Project site
Grasshopper sparrow *Ammodramus savannarum*	CSC/-	Grasslands	No	No	No
Tricolored blackbird *Agelaius tricolor*	T/-	Marsh, bramble, silage, grassland, pastures	Yes (foraging)	No	No
Palid bat *Antrozous pallidus*	CSC/-	Grasslands, shrub lands, woodlands.	Yes (foraging)	No	No
Townsends big-eared bat *Corynorhinus townsendii*	CSC/-	Caves, bridges, buildings	Yes (foraging)	No	No
Western red bat *Lasiurus blossevillii*	CSC/-	Riparian woodland, fruit orchards	Yes (foraging)	No	No
Baker's navarretia *Navarretia leucocephala*	1B/-	Vernal pools	No	No	No
Round-leaved filaree *Erodium macrophyllum*	2/-	Grasslands	No	No	No
Adobe lily *Fritillaria pluriflora*	1B/-	Grasslands	No	No	No
Brewer's western flax *Hesperolinon breweri*	1B/-	Grasslands	No	No	No
Heckard's pepper-grass *Lepidium latipes v. heckardii*	1B/-	Alkali grasslands	No	No	No
Heartscale *Atriplex cordulata v. cordulata*	1B/-	Alkali grasslands	No	No	No
California alkali grass *Puccinellia simplex*	1B/-	Alkali grasslands	No	No	No
Alkali milkvetch *Astragalus tener var. tener*	1B/-	Alkali grasslands	No	No	No
Ferris' milk-vetch *Astragalus tener v. ferrisiae*	1B/-	Alkali grasslands	No	No	No
Brittlescale *Atriplex depressa*	1B/-	Alkali grasslands	No	No	No
San Joaquin spearscale *Extriplex joaquinana*	1B/-	Alkali grasslands	No	No	No
Palmate-bracted bird's beak *Chloropyron palmatum*	1B-E/E	Alkali grasslands	No	No	No
Saline clover *Trifolium hydrophilum*	1B/-	Alkali grasslands	No	No	No
Colusa layia *Layia septentrionalis*	1B/-	Foothill woodland, chaparral, grassland	No	No	No
Keck's checkerbloom *Sidalcea keckii*	1B/-	Foothill woodland, grassland	No	No	No

T=threatened; E=Endangered; CSC=California species of species concern; FP=state fully protected; 1B and 2 =CNPS rare plant ranks;

Northern harrier

The northern harrier is a state species of special concern that nests on the ground in grassland, seasonal marsh, and occasionally in some cultivated habitats. The species is frequently observed throughout most of Yolo County; however, there are relatively few reported nest sites due to the difficulty confirming the location of ground nests. CNDDB (2020) reports very few nest sites, and none from the vicinity of the project site. However, there are undoubtedly additional nesting territories in the general vicinity of the project site. eBird reports numerous occurrences of the species in the vicinity of the project site, but does not report confirmed breeding sites. The project site supports suitable cultivated foraging habitat for northern harrier, but potential nesting

is dependent on the agricultural cover type in any given year. Tomatoes and sunflower are not considered suitable cover types for nesting. The surrounding ditches and canals also do not support sufficient habitat for nest sites.

Swainson's Hawk

The Swainson's hawk is a medium-sized raptor associated with generally flat, open landscapes. In the Central Valley it nests in mature native and nonnative trees and forages in grassland and agricultural habitats. Although a state-threatened species, the Swainson's hawk is common in Yolo County during the spring-summer breeding season due to the availability of nest trees and the agricultural crop patterns that are compatible with Swainson's hawk foraging. During a County-wide census in 2020, nearly 400 active nests sites were identified in Yolo County (Estep 2020), at least 18 of which are within 5 miles of the project site, and the nearest of which is approximately 1 mile southwest of the project site (Figure 5).

During the April 27, 2021 survey, an active Swainson's hawk nest was found in the isolated walnut tree along the western edge of the project site (Plate 9). There are no other potential nest trees in the immediate vicinity of the project site. The project site also supports suitable cultivated foraging habitat for Swainson's hawks.

Plate 9. Walnut tree along the western border of the project site. An active Swainson's hawk nest is midway up on the right side of the main trunk.

White-tailed kite

The white-tailed kite, a state fully protected species is a highly specialized and distinctively-marked raptor associated with open grassland and seasonal wetland landscapes. It typically nests in riparian forests, woodlands, woodlots, and occasionally in isolated trees, primarily willow, valley oak, cottonwood, and walnut) and some nonnative trees. It forages in grassland, seasonal wetland, and agricultural lands, but is more limited in its use of cultivated habitats compared with the Swainson's hawk. As a result, the species occurs throughout most of Yolo County, but in low breeding densities (Dunk 1995, Erichsen 1995, Estep 2020).

No white-tailed kites were detected during the survey and no nests have been reported from the immediate vicinity of the project site. The nearest recently reported nest is approximately 13 miles southeast of the project site along Willow Slough (Estep 2020) (Figure 5). Cache Creek Conservancy reports white-tailed kites on the preserve during the breeding season (Cache Creek Preserve 2016) and eBird reports numerous breeding season occurrences in the area, including near Esparto, south of Madison, and several 2020 occurrences from Cache Creek Preserve, approximately 6 miles east of the project site, and others both upstream and downstream along Cache Creek (Figure 5). The isolated walnut tree on the west side of the project site is suitable for nesting; however, as noted above, it is currently occupied by nesting Swainson's hawks. No other potential nesting habitat occurs in the immediate vicinity (within 0.25 miles) of the project site. The cultivated fields on the project site represent suitable foraging habitat for this species.

Mountain Plover

The mountain plover (*Charadrius montanus*), a state species of special concern, was formerly an occasional winter visitor to a specific area of Yolo County, but reported occurrences have declined sharply in at least the last decade. The species arrives on its wintering grounds in California from November through December where it remains through March. During winter, the species roosts and forages in short grass prairies, pastureland, grazed grasslands, and occasionally – as with most of the reported occurrences in Yolo County – in disked agricultural fields (Manolis and Tangren 1975, Hunting et al. 2001, Hunting and Edson 2008). Small flocks had been observed in recently-plowed agricultural fields near Woodland and Davis, especially along County Roads 16, 25, 27, and 102 and in unflooded portions of the Yolo Bypass. CNDDB (2020) reports no occurrences in the vicinity of the project site; however, eBird reports a 2000 sighting in a field less than 1 mile west of the project site and several other sites in the Dunnigan Hills and Hungry Valley, north of the project site (Figure 5). Mountain plover occurrence in cultivated fields is incidental and dependent on the condition of the field. All reported occurrences have been in plowed or prepared fields that are not planted and have virtually no vegetation. The project site fields could potentially support incidental occurrences of mountain plover during the winter if they meet this condition.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*), a state species of special concern, occurs in open, dry grasslands, agricultural and range lands, and desert habitats. In the Central Valley, they are associated with remaining grassland habitats, pasturelands, and edges of agricultural fields.

They also occur in vacant lots and remnant grassland or ruderal habitats within urbanizing areas. Historically nesting in larger colonies, due to limited nesting habitat availability most of the more recent occurrences are individual nesting pairs or several loosely associated nesting pairs. The burrowing owl is a subterranean-nesting species, typically occupying the burrows created by California ground squirrels. They also occupy artificial habitats, such as those created by rock piles and occasionally in open pipes and small culverts. They forage for small rodents and insects in grassland and some agricultural habitats with low vegetative height. Key to burrowing owl occupancy are grassland or ruderal conditions that maintain very short vegetative height around potential nesting burrows (Gervais et al. 2008).

In Yolo County, burrowing owls occur mainly in the grassland and pasture habitats of the southern panhandle and in cultivated and ruderal habitats in the Davis area. Nesting and wintering occurrences have also been reported from the area immediately north of Winters, in the Dunnigan Hills, and elsewhere in the grassland foothills along the west side of the valley. Neither CNDDB or eBird report any breeding or wintering occurrences in the immediate vicinity of the project site. The cultivated crops on the project site support marginal habitat foraging habitat for burrowing owls. The only potential for occurrence is along the perimeter canals and ditches; however, no evidence of ground squirrel use or other potential burrowing habitat was detected during surveys.

Loggerhead Shrike

The loggerhead shrike occurs in open habitats with scattered trees, shrubs, posts, fences, utility lines, or other perches. It nests in small trees and shrubs and forages for small rodents, reptiles, and insects in pastures and agricultural lands (Humple 2008). An underreported species in CNDDB, no records are available for Yolo County (CNDDB 2020). However, eBird reports numerous incidental records throughout Yolo County, including the vicinity of the project site. The grassland and oak savannah foothills along the western edge of the valley are thought to be the highest value habitat for this species; but some cultivated landscapes may also provide suitable conditions for nesting and foraging.

No loggerhead shrikes were detected during surveys and no nests have been reported from the project site or immediate vicinity (CNDDB 2020, eBird 2021). The project site and immediately surrounding lands do not support suitable nesting habitat for shrikes. The species is more likely to be incidentally observed foraging in the cultivated habitats surrounding the project site.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a state-listed threatened species that nests in colonies from several dozen to several thousand breeding pairs. They have three basic requirements for selecting their breeding colony sites: open accessible water; a protected nesting substrate, including either flooded or thorny or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Beedy and Hamilton 1999). Nesting colonies are found in freshwater emergent marshes, in willows, blackberry bramble, thistles, or nettles, and in silage and grain fields (Beedy and Hamilton 1999).

Most recently reported tricolored blackbird colonies in Yolo County occur in the eastern part of the county, including Conaway Ranch and at locations in the Yolo Bypass, and along the western edge of the valley (CNDDB 2020, Tricolored Blackbird Portal); however, eBird reports numerous incidental non-breeding or foraging occurrences throughout the interior of the county. CNDDB also reports historic breeding locations that have long since been abandoned or the breeding habitat no longer exists. Although the cultivated fields on the project site may provide incidental foraging habitat, there is no breeding habitat for tricolored blackbirds on or in the vicinity of the project site.

Special-status Bats

Three special status bats potentially occur incidentally in the vicinity of the project site, including pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), and western red bat (*Lasiurus blossevillii*), all state species of special concern. Pallid bat occurs primarily in shrublands, woodlands, and forested habitats, but also can forage in grasslands and agricultural areas. Townsends's big-eared bat occurs in a variety of woodland and open habitats, including agricultural areas. Western red bat occurs in wooded habitats, including riparian and fruit orchards, and grasslands. Pallid bat and Townsend's big-eared bat roost in mines, caves, rocky crevices, large hollow trees, and occasionally in large open buildings that are usually abandoned or infrequently inhabited. Western red bat usually roosts in large trees (Pierson and Rainey 1998, Pierson 1998, Fellers and Pierson 2002, Pierson et al. 2006).

Most reported occurrences are from the foothills and higher elevation areas of western Yolo County; however, CNDDB (2020) reports a red bat occurrence from the confluence of Dry Creek and Putah Creek in 2013. Also see CNDDB locations reported in Sol Ecology (2021). There are no suitable trees or other potential roosting habitat for these species on or in the vicinity of the project site. The nearest marginally suitable roosting habitat for red bat is along Cache Creek, north of the project site. Although the agricultural landscape is not generally considered suitable habitat for these species, they could potentially hunt for insects above the project site.

Special-status Plants

Table 1 lists 15 special-status plants known to occur in Yolo County. Calflora reports occurrences of these species from the general area; however, none been reported from the project site or surrounding area. These species are associated with foothill grassland, woodland, alkali grassland, and vernal pool habitats, none of which occur on or in the immediate vicinity of the project site.

Impacts of the Proposed Project

Biological Communities

The project site does not support and thus the project would not remove or disturb any sensitive natural communities. The project would convert 147 acres of cultivated field to a solar array

with a managed grass substrate and planted with pollinator plants. The existing cultivated fields consist of row or grain crops, which are typically harvested in the mid-to-late summer. Following harvest, the fields are disked and typically remain devoid of vegetation until the next planting. Although providing periodic habitat value to agriculture-associated wildlife, overall habitat value is limited and inconsistent throughout the year. In contrast, the grassland/pollinator substrate will provide consistent, year-round cover and value to grassland-associated species. As a result, the overall biological value of the project site may be enhanced compared to its current use.

Wildlife Movement Corridors

The project is not located within a wildlife movement corridor. The site and surrounding landscape consist of similar topography and agricultural land use characteristics. The project site and surrounding lands do not include unique topography or vegetation that would concentrate wildlife use or occurrence. Therefore, wildlife movement is expected to occur similarly over a broad geographic area.

Special-Status Species

Only those special-status species with potential to occur on or adjacent to the project site (highlighted in green in Table 1) are addressed below. There is no suitable habitat on or adjacent to the project site for the non-highlighted species and therefore the project will not impact those species.

Swainson's Hawk and White-tailed Kite

The project site supports an active Swainson's hawk nest and approximately 147 acres of suitable foraging habitat. The foraging habitat is similar to that found throughout the cultivated landscape of Yolo County and represents approximately 0.05 percent of the suitable foraging habitat in the county (Estep 2020).

The onsite nest tree will not be removed by the project. The tree occurs along the western edge of the project site and will be at least 30 feet from the nearest row of the solar panels. Installation of the facility during the nonbreeding season (approximately August 15 to March 1), will avoid disturbances to the nest in the event it is active in subsequent years. There are no noise or visual disturbances associated with project operation.

Northern Harrier, Western Burrowing Owl, Loggerhead Shrike, Tricolored Blackbird, Mountain Plover

There is no suitable nesting habitat for northern harriers, western burrowing owls, loggerhead shrikes, tricolored blackbirds, or mountain plovers on the project site. Although it is possible that these species could occasionally hunt or otherwise occur on the project site, the conversion of the 147 acres of cultivated field to a solar array would not constitute a significant impact or

need for mitigation or avoidance measures. By maintaining a grass/pollinator plant substrate on the project site, foraging value may increase for some species.

Special-status Bats

No potential roosting habitat would be removed or otherwise disturbed by the proposed project. Therefore, the project would have no impact on pallid bat, western red bat, or Townsend's big-eared bat.

Special-status Plants

The project site does not support habitat for any of the special-status plant species known to occur in Yolo County, and therefore the project would have no impact on these species.

Conclusions and Recommendations

The project will not result in significant impacts to biological communities, wildlife habitats, wildlife movement corridors, and with the possible exception of Swainson's hawk, special-status species. Managed according to the site plan with a grassland substrate and use of pollinator plants, the overall biological value of the project site may be enhanced compared with current conditions.

Swainson's Hawk. The project will impact approximately 147 acres of Swainson's hawk foraging habitat. Representing 0.05 percent of the suitable foraging habitat in Yolo County, the project is not expected to affect the local or regional breeding population. In addition, because the project site will be managed with a grassland and pollinator plant substrate, it is expected to support relatively high value habitat for rodent and insect prey species, and serve as a source of recolonization of rodent species into adjacent cultivated fields, similar to fallow or weedy fields or uncultivated grasslands and pastures. See the Project Description or the Land Use Permit Application (Gibson Renewables, LLC 2020) for a description of the solar site management for soil, storm water, and pollinator benefits through application of agrivoltaic systems, vegetation management, and apiary operations. These benefits are expected to enhance the overall ecologic function of the site (Dolezal et al. 2021) and enhanced foraging value to Swainson's hawks and other raptors. Also, recent research has shown that Swainson's hawks and other raptor species will continue to hunt within similarly sized and managed solar facilities that are integrated within a diverse agricultural matrix (Estep 2013). Finally, because Yolo County supports a robust nesting population of over 400 nesting pairs and because there is an operational HCP/NCCP in the county designed to address the conservation and protection of this and other covered species, the conversion of 147 acres of irrigated cropland to a solar field managed to enhance biological values, including prey resources for the Swainson's hawk, is not considered a significant impact to Swainson's hawk.

Because there is an active Swainson's hawk nest onsite, construction activities during installation of the project could disturb the active nest and potentially result in nest abandonment and mortality of eggs or young. To avoid this impact, construction should occur during the nonbreeding season, August 15 to March 15, unless it is determined that the nest is inactive during the construction year. If construction is scheduled to occur during the breeding season, surveys should be conducted prior to project activities to determine activity at the nest site. If the nest is active, a 1,320-foot non-disturbance buffer should be established around the nest to minimize disturbance. Alternatively, an incidental take permit may be sought in consultation with the California Department of Fish and Wildlife pursuant to Section 2080 of the state endangered species act. Because there are no other potential nest trees within 1,320 feet of the project site, no other preconstruction surveys for Swainson's hawk or white-tailed kite are necessary.

References

Beedy, E.C. and W.J. Hamilton III. 1999. Tricolored Blackbird (*Agelaius tricolor*). In: The Birds of North America, No. 423 (A. Poole and F. Gill [eds.]). The Birds of North America, Inc., Philadelphia, PA.

California Natural Diversity Data Base. 2020. Search of quads in the vicinity of the Gibson Solar Project, Yolo County.

Dolezal, A., J. Torres, and M. O'Neal. 2021. Can Solar Energy Fuel Pollinator Conservation, *Environmental Entomology*, 2021;nvab041 https://doi.org/10.1093/ee/nvab041

Dunk, J.R. 1995. White-tailed Kite (*Elanus leucurus*). *In* The Birds of North America, No. 178 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.
eBird (online database of bird observations) (https://ebird.org/home);

Erichsen, A. L. 1995. The White-tailed kite (*Elanus leucurus*): nesting success and seasonal habitat selection in an agricultural landscape. Thesis. University of California, Davis, CA.

Estep, J.A. 2013. Swainson's Hawk and Other Raptor Foraging Use of Solar Array Fields within an Agricultural Landscape in Sacramento County. Prepared for Recurrent Energy, San Francisco, CA

Estep, J.A. 2020. The 2020 Distribution, Abundance, and Habitat Associations of the Swainson's Hawk (*Buteo swainsoni*) in Yolo County, CA. Prepared for the Yolo Habitat Conservancy, Woodland, CA.

Fellers, G. M., and E. D. Pierson. 2002. Habitat use and foraging behavior of Townsend's big-eared bat (*Corynorhinus townsendii*) in coastal California. J. of Mammalogy, 83(1):167-177.

Gervais, J.A., D.R. Rosenberg, and L.A. Comrack. 2008. Burrowing Owl. In Shuford, W. D., and Gardali, T., eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Dept. of Fish and Game, Sacramento.

Gibson Renewables, LLC. 2020. Land Use Permit Application for Gibson Solar Farm.

Goetzberger, A. and A. Zastrow. 1982. On the Coexistence of Solar-Energy Conversion and Plant Cultivation. International Journal of Solar Energy, 1(1):55–69.

Humple, D. 2008. Loggerhead shrike. In: Shuford, W. D., and Gardali, T., eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Dept. of Fish and Game, Sacramento.

Hunting, K., and L. Edson. 2008. Mountain Plover in Shuford, W. D., and Gardali, T., eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Hunting, K. W., S. Fitton, and L. Edson. 2001. Distribution and Habitat Associations of the Mountain Plover (*Charadrius montanus*) in California. Trans. West. Sect. Wildl. Soc. 37: 37-42.

Manolis, T. and G. V. Tangren. 1975. Shorebirds of the Sacramento Valley, California. Western Birds 6: 45-54.

Pierson, E. D. 1988. The status of Townsend's big-eared bats in California: Preliminary results 1987–1988. Unpublished Progress Report, Wildlife Management Division, California Department of Fish and Game, Sacramento, CA.

Pierson, E. D., and W. E. Rainey. 1998. Pallid bat *Antrozous pallidus*. In Terrestrial Mammal Species of Special Concern in California, Bolster, B. C., editor. Draft Bird and Mammal Conservation Program Report No. 98-14, California Department of Fish and Game.

Pierson, E.D., W.E. Rainey and C. Corben. 2006. Distribution and status of Western red bats (*Lasiurus blossevillii*) in California. Calif. Dept. Fish and Game, Habitat Conservation Planning Branch, Species Conservation and Recovery Program Rpt 2006-04, Sacramento, CA.

Sol Ecology. 2021. Biological Resources Report, Gibson Solar Facility Project, Yolo County. Prepared for Gibson Renewables, LLC, Pleasanton, CA.

Tompkins, M., P. Frank, A.P. Rayburn. 2017. 2017 Technical Studies and 20-year Retrospective for the Cache Creek Area Plan. Prepared for: Yolo County Administrator's Office, Woodland, CA.

Tricolored blackbird portal (https://tricolor.ice.ucdavis.edu/).

Yolo County (2009). 2030 Countywide General Plan. Yolo County Planning and Public Works Department, Woodland, CA.

Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan. (www.yolohabitatconservancy.org/).

Appendix D

Cultural Resources Pedestrian Survey

CONFIDENTIAL