Community and Economic Development
Planning Division

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PLANNING COMMISSION DATE: January 8, 2019

AGENDA ITEM: #4

CUP **WCC**	**#2018-020** **#2018-001**	**3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility**
APN	**#031-091-038**	**Applicant: APEX Energy Solutions, LLC** **Owner: APEX Energy Solutions, LLC**
CEQA	**MND #2018-26**	**Mitigated Negative Declaration**

REQUEST:

The applicant is requesting a Conditional Use Permit to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit.

LOCATION:

On the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera

ENVIRONMENTAL ASSESSMENT:

A Mitigated Negative Declaration (MND#2018-26) has been prepared and is subject to approval by the Planning Commission.

RECOMMENDATION: Staff recommends approval of CUP #2018-020 subject to conditions, Mitigated Negative Declaration #2018-26 and the Mitigation Monitoring Program.

CUP # 2018-020
STAFF REPORT

GENERAL PLAN DESIGNATION (Exhibit A):

SITE:	AE (Agriculture Exclusive) Designation
SURROUNDING:	AE (Agriculture Exclusive) Designation

ZONING (Exhibit B):

SITE:	ARE-40 (Agriculture Rural Exclusive) 20 Acre District
SURROUNDING:	ARE-40 (Agriculture Rural Exclusive) 40 Acre District, CRM (Commercial Rural Median)

LAND USE:

SITE:	Agriculture
SURROUNDING:	Agriculture, Commercial

SIZE OF PROPERTY: 19.35 Acres

ACCESS (Exhibit B): Access to the site is via Road 600

BACKGROUND AND PRIOR ACTIONS:

There are no background or prior actions on this parcel.

PROJECT DESCRIPTION:

This is a request for a Conditional Use Permit (#2018-020) to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit. The project would be constructed over an up-to fourteen (14)-month period and is anticipated to operate for a period of up to 30 years. After the 30-year project service life, the project would be decommissioned. The applicant will be required to submit a reclamation plan to highlight the restoration process for the project site returning to its pre-project condition. At peak production, the 3 MW solar energy storage facility would supply enough clean energy to power up to 1,000 residential homes per year. The parcel is also under a Williamson Act Contract, and will have to exit out the contract due to the project's non-agricultural use of the land. A contract cancellation is being processed and will be considered by the Board of Supervisors in the near future.

ORDINANCES/POLICIES:

Chapter 18.92 of the Madera County Zoning Ordinance outlines the procedures for the processing and approval of conditional use permits.

Chapter 18.53 of the Madera County Zoning Ordinance outlines the additional restrictions to certain uses in an ARE-40 (Agricultural, Rural, Exclusive) 20 Acre District.

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Chapter 18.94.180 of Madera County Zoning Ordinance outlines additional restrictions where solar farms are permitted by conditional use permit.

Madera County General Plan Policy Document (Part 1) outlines the AE (Agricultural Exclusive) designation.

ANALYSIS:

This is a request for a Conditional Use Permit (#2018-020) to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit. The project would be constructed over an up-to fourteen (14)-month period and is anticipated to operate for a period of up to 30 years. After the 30-year project service life, the project would be decommissioned, and the project site returned to its pre-project condition. The proposed solar facility will cover 19 acres out of the 19.35-acre parcel (225,226 sq. ft.). Other major components for the solar facility will include PV modules mounted on stationary fixed-tilt ground-mounted racking or single-axis trackers, battery storage system enclosures, inverters and transformers, an electrical collection and distribution system, internal access roads, fencing, data monitoring equipment, and required utility interconnection facility, distribution, and/or network upgrades. The solar facility would be secured with a 6'-0'' tall chain link fence with barbed wire added on top for total height of 7'-0".

Once construction is complete, operations would take place year-round during daylight hours when there is sufficient sunlight to begin operation of the solar field. An estimated two or three offsite employees would be reserved for maintenance and would be dispatched to the site for routine scheduled maintenance and on an as-needed basis for unscheduled maintenance. Site maintenance is anticipated to occur approximately two to four times per year for a period of three to five days per maintenance period.

A biological resources assessment was performed to assess the potential impact for special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the project Area. The proposed solar facility project does not provide a high-quality wildlife movement corridor. However, common species as well as some special-status species might travel through the Project Area to reach adjacent areas. The projects potential impacts are listed in the submitted biological resources assessment (Exhibit I). Mitigation placed to prevent potential impact from the solar facility is listed in the mitigation monitoring report form.

A cultural resources inventory report was conducted for the proposed solar facility. No cultural resources were identified on the property as a result of the records search and field survey. Therefore, no Historic Properties for Section 106 purposes or Historical Resources as defined by CEQA will be affected by the proposed Project. Mitigation for the management of unanticipated discoveries are provided on the mitigation monitoring report form.

The property is situated on the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera. The property is surrounded by multiple agricultural and commercial parcels that extend up Road 600 and down Road 31. Surrounding properties include ARE-20 (Agricultural, Rural, Exclusive) zoned parcels, ARE-40 (Agricultural, Rural, Exclusive) zoned parcels, and CRM (Commercial, Rural, Median) zoned parcels. Lots in the area range from 2.67 acres to 19.73 acres. This project has been circulated to internal and external departments. These external departments include: California Department of Fish and Wildlife, Department of Transportation, California Regional Water Quality Control Board, San Joaquin Valley Air Pollution Control District, Chowchilla Yokuts Tribe, Dumna Wo Wah Tribal Government, Picayune Rancheria of the Chukchansi Indians, and Table Mountain Rancheria. Comments were received from Environmental Health, Fire Marshal, Public Works, Dumna Wo Wah Tribal Government, and Table Mountain Rancheria.

The Environmental Health Division states that the construction and then ongoing operation must be done in a manner that shall not allow any type of public nuisance(s) to occur including but not limited to the following nuisance(s); Dust, Odor(s), Noise(s), Lighting, Vector(s) or Litter. This must be accomplished under accepted and approved Best Management Practices (BMP) and as required by the County General Plan, County Ordinances and any other related State and/or Federal jurisdiction facility will be regulated under the Hazardous Material Business Plan and or Waste Generator depending on the type and/or amount of hazardous material on-site. (Article I, Chapter 6.95, of the California Health & Safety Code).

Public Works stated that the project would be required to design the detention/retention facilities to withstand the 100 year 10 day storm event, and would be required to mitigate for the difference in pre and post development run-off. The applicant shall also submit a stamped grading and drainage plan and application to the County prior to the issuance of a Commercial Permit. If applicable, drainage or onsite storage calculations will need to be submitted to the Public Works Department for review and approval as well. This plan shall identify onsite retention for any increase in storm water runoff generated by the proposed development. The grading, drainage plan, and calculations shall be prepared by a licensed professional.

The fire Marshal stated that a Knox emergency access entry device or lock shall be installed prior to construction permit final on the primary gated entry.

The only water required for operation would be water consumed by panel washing and small quantities used for dust mitigation. The amount of water needed for the two to four washings per year is estimated to be approximately 0.04 to 0.71 acre-feet per year, or approximately 11,600 to 23,200 gallons per year. 4,000-gallon water trucks would be supplied by the project proponent and trucked in from offsite sources. No trash will be generated and the increase in ambient noise levels will be less than significant.

Since the proposed project is an unmanned solar facility, there would be little to no

impact to the traffic load. The closest count reported from the 2017 County of Madera Traffic Volume Report, was on Road 600. In this daily trip report, 396 trips were recorded northbound on Road 600, and 397 trips were recorded southbound on Road 600.

The project area is currently enrolled within the Williamson Act program. The California Department of Conservation has recently outlined three ways in which solar energy facilities proposed on Williamson Act lands may be handled. First, the facility may be allowed as a compatible use depending on the three principles of compatibility established in section 51238.1 of California Government Code. Second, the landowner may provide notice of nonrenewal to the County and be released from the program after the nine year waiting period. Third, the contract may be cancelled pursuant to Government Code section 51282. Documentation has been submitted by the applicant to initiate the contract cancelation processes.

The project is proposed in an area largely designated as unique farmland by the State of California. Because the solar energy storage system's supporting equipment would sit on the surface of the land, when they are removed after the project's lifetime the land would be largely unaltered from its natural state. The project will be conditioned to ensure decommissioning of the project after its productive lifetime. The project would use BMPs to ensure the collection and recycling of PV modules and batteries and minimize the potential for such materials to be disposed of as municipal waste.

Decommissioning and reclamation may include: 1) packaging PV modules and batteries for removal and recycling or otherwise ensuring removal; 2) removing ancillary facilities; and 3) reclamation, re-vegetation, restoration, and soil stabilization to return the site to its native conditions; or 4) return to agricultural production as dictated by any agreements that may be put into place between the applicant and the property owner(s). The PV modules are expected to still have useful life and would still be capable of producing electricity; these would be marketed for resale. Material and equipment such as the racking structures and mechanical assemblies will be recycled. The inverters and transformer(s) will also be reused or recycled. The equipment pads made of concrete will be crushed and recycled. Any underground conduit and wire will be removed by uncovering the trenches and backfilling when done. The remaining balance of material and/or waste generated from the project would either be recycled as appropriate for the type of material or disposed of at the local transfer station and/or landfill facility.

The construction of solar energy facilities in Madera County has several benefits. Notably, PV solar power is a renewable form of power generation that does not involve any harmful air emissions. On a statewide basis, the development of solar energy facilities contributes towards compliance with Assembly Bill 32, State law that seeks a reduction in the emission of greenhouse gases. The project would contribute towards the State's goal of 33% of all electrical generation to come from renewable sources by 2020. PV solar power also requires minimal water use for periodic washing of the panels and wouldn't add strain upon local groundwater

supplies.

If this project is approved, the applicant will need to submit a check, made out to the County of Madera, in the amount of $2,404.75 to cover the Notice of Determination (CEQA) filing at the Madera County Clerks' office. The amount covers the $2,354.75 Department of Fish and Wildlife fee that took effect January 1, 2019 and the County Clerk $50.00 filing fee. In lieu of the Fish and Wildlife fee, the applicant may choose to contact the Fresno office of the Department of Fish and Wildlife to apply for a fee waiver. The County Clerk Fee, Department of Fish and Wildlife Fee (or waiver if approved) is due within five days of approval of this permit at the Board of Supervisors.

FINDINGS:

The Madera County Zoning Ordinance requires that the following findings of fact must be made by the Planning Commission to grant approval of this permit:

1. The proposed project does not violate the spirit or intent of the Zoning Ordinance in that the Conditional Use Permit application for the use is consistent with the Zoning Ordinance designation for this parcel as a solar facility. These activities are listed in the ordinance and do require a Conditional Use Permit.

2. The proposed project is not contrary to the public health, safety, or general welfare. No activities from the proposed project will have a significant impact with the public's health, safety, or general welfare because conditions of approval are being incorporated. Mitigation measures are further included to alleviate potentially significant impacts to agricultural, biological, and cultural resources. Compliance with the project conditions and mitigation measures will ensure that the welfare of the surrounding community is not impacted.

The proposal would have a positive impact upon the welfare of the region and state. Assembly Bill SB-32, signed by the State in 2016, requires significant reductions in greenhouse gas emissions (GHG). The subject project will further this goal through the creation of a power generation facility that does not include the emissions of GHGs and will reduce the State's dependence on fossil fuel energy sources that creates GHGs as a byproduct.

3. The proposed project is not hazardous, harmful, noxious, offensive, or a nuisance because of noise, dust, smoke, odor, glare, or similar, factors, in that the project must adhere to the conditions of approval as well as mitigation measures. The proposal will not involve hazardous materials or result in the emission of hazardous materials. No emission of any kind will result. Minimal odors and noise will be produced from operation.

4. The proposed project will not for any reason cause a substantial, adverse effect upon the property values and general desirability of the surrounding properties. The proposed solar facility will visually stand out due to the rural agriculturally surrounded area, however due to the operation of the solar facility and the nature of

the area, the impact will be minimal.

WILLIAMSON ACT:

The property is currently under the Williamson Act Contract; however, a contract cancellation will also be considered by the Board of Supervisors.

GENERAL PLAN CONSISTENCY:

The General Plan designation for the property is AE (Agricultural Exclusive) Designation which provides for agricultural uses, limited agricultural support service uses, agriculturally oriented services, timber production, mineral extraction, airstrips, public and commercial refuse disposal sites, recreational uses, public and quasi public uses, and similar and compatible uses. The property is zoned ARE-40 (Agricultural, Rural Exlclusive-40 acre) District which allows for a solar facility, with a Conditional Use Permit. The Zoning and General Plan designations are consistent with the proposed use.

RECOMMENDATION:

Staff recommends approval of CUP #2018-020, Mitigated Negative Declaration #2018-26 and associated Mitigation Monitoring Program

CONDITIONS:

See attachments

ATTACHMENTS:

1. Exhibit A. General Plan Map
2. Exhibit B. Zoning Map
3. Exhibit C. Assessor's Map
4. Exhibit D. Site Plan/Elevation Plan/Fencing Details
5. Exhibit E. Aerial Map
6. Exhibit F. Topographical Map
7. Exhibit G. Operational Statement
8. Exhibit H. Jade Solar Energy Storage Project Operational Statement
9. Exhibit I. Biological Resources Assessment
10. Exhibit J. Environmental Health Comments
11. Exhibit K. Public Works Comments
12. Exhibit L. Fire Marshal Comments
13. Exhibit M. Caltrans Comments
14. Exhibit N. Table Mountain Rancheria Tribal Government Comments
15. Exhibit O. Initial Study
16. Exhibit P. Mitigated Negative Declaration

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CONDITIONS OF APPROVAL

PROJECT NAME:	CUP #2018-020
PROJECT LOCATION:	On the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera
PROJECT DESCRIPTION:	This is a request for a Conditional Use Permit (#2018-020) to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit.
APPLICANT:	APEX Energy Solutions, LLC
CONTACT PERSON/TELEPHONE NUMBER:	Jamie Nagel (916) 985-9461

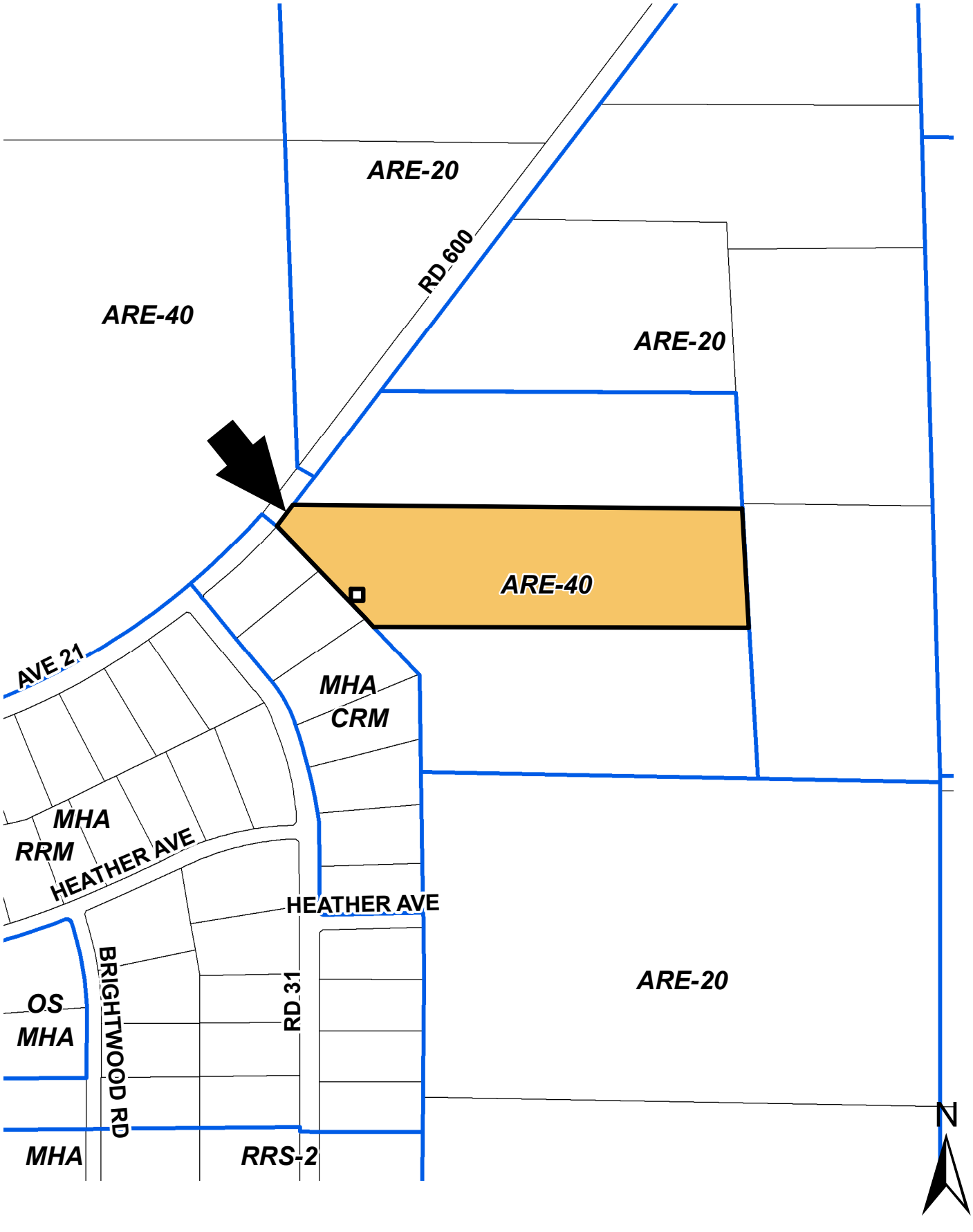
No.	Condition	Department/Agency	Verification of Compliance		
			Initials	Date	Remarks
Environmental Health					
1	During the construction phase, provide portable restroom facilities and maintain restroom facilities	EH			
2	The construction and then ongoing operation must be done in a manner that shall not allow any type of public nuisance(s) to occur including but not limited to the following nuisance(s); Dust, Odor(s), Noise(s), Lighting, Vector(s) or Litter. This must be accomplished under accepted and approved Best Management Practices (BMP) and as required by the County General Plan, County Ordinances and any other related State and/or Federal jurisdiction.	EH			
Fire					
1	A Knox emergency access entry device or lock shall be installed prior to construction permit final on the primary gated entry point.	Fire			
Planning					
1	Facility to operate in accordance with submitted Operational Statement and plans unless otherwise modified by conditions of approval.	Planning			
2	The applicant shall be required to maintain the facility at an acceptable level as determined by the Planning Department regarding visual/aesthetic components of the facility until such time as the solar facility is removed	Planning			
3	Driveway, circulation, access and pad area to be kept in a dust free environment.	Planning			
4	At the end of the project's operational term, the solar facility should be decomissioned and deconstructed, or seek an extension for the Conditional Use Permit	Planning			
Public Works					

No.	Condition	Department/Agency	Verification of Compliance		
			Initials	Date	Remarks
1	The applicant shall submit a stamped grading and drainage plan and application to the County prior to the issuance of a Commercial Permit. If applicable, drainage or onsite storage calculations will need to be submitted to the Public Works Department for review and approval as well. This plan shall identify onsite retention for any increase in storm water runoff generated by the proposed development. The grading, drainage plan, and calculations shall be prepared by a licensed professional.	Public Works			
2	The project would be required to design the detention/retention facilities to withstand the 100 year 10 day storm event, and would be required to mitigate for the difference in pre and post development run-off.	Public Works			

EXHIBIT A

GENERAL PLAN MAP

EXHIBIT B



ZONING MAP

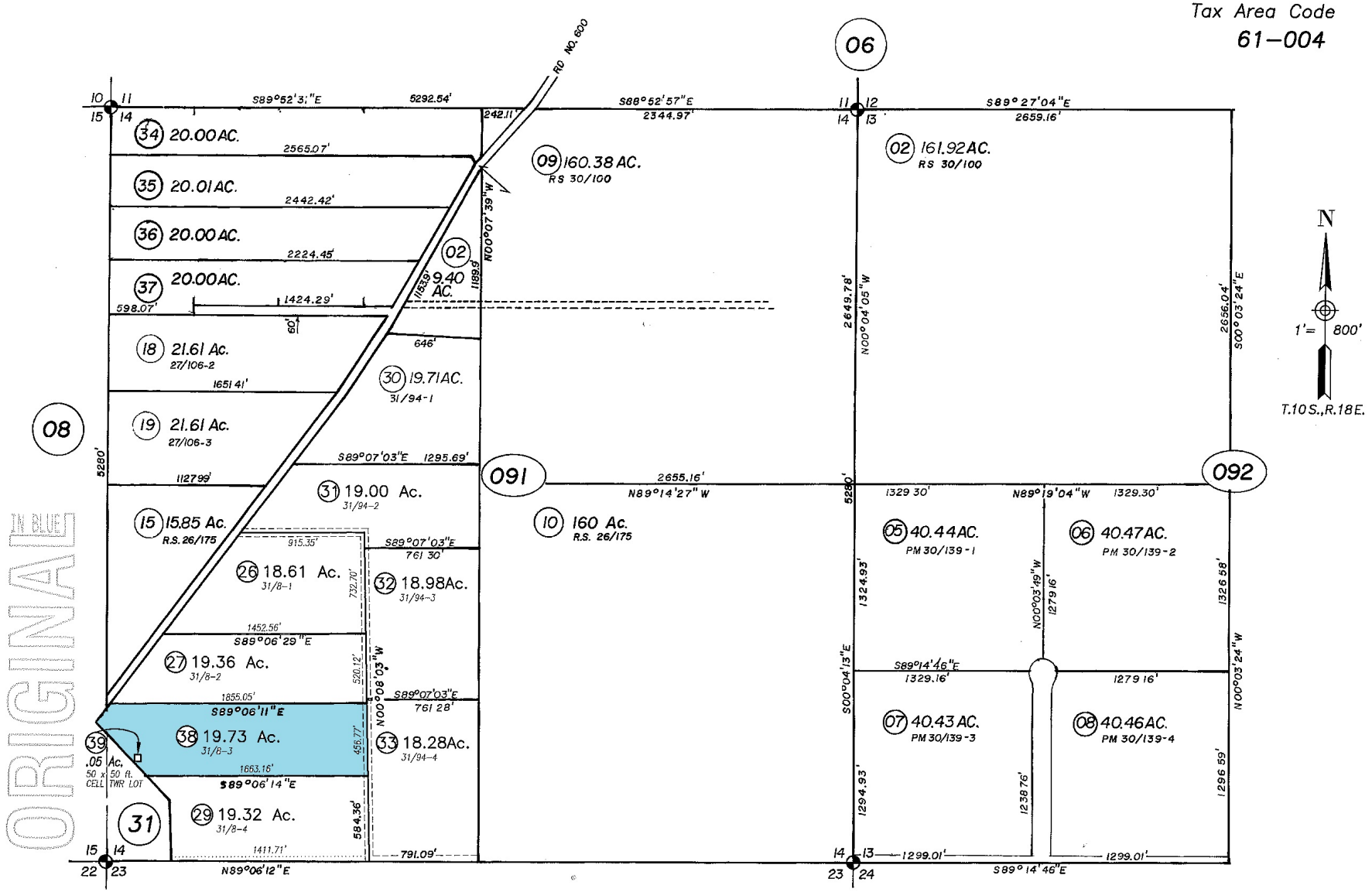
ASSESSOR'S MAP

SEC. 14 T.10S., R.18E.

SEC. 13 T.10S., R.18E. M.D.B.&M.

31–09

Tax Area Code
61–004



NOTE– Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

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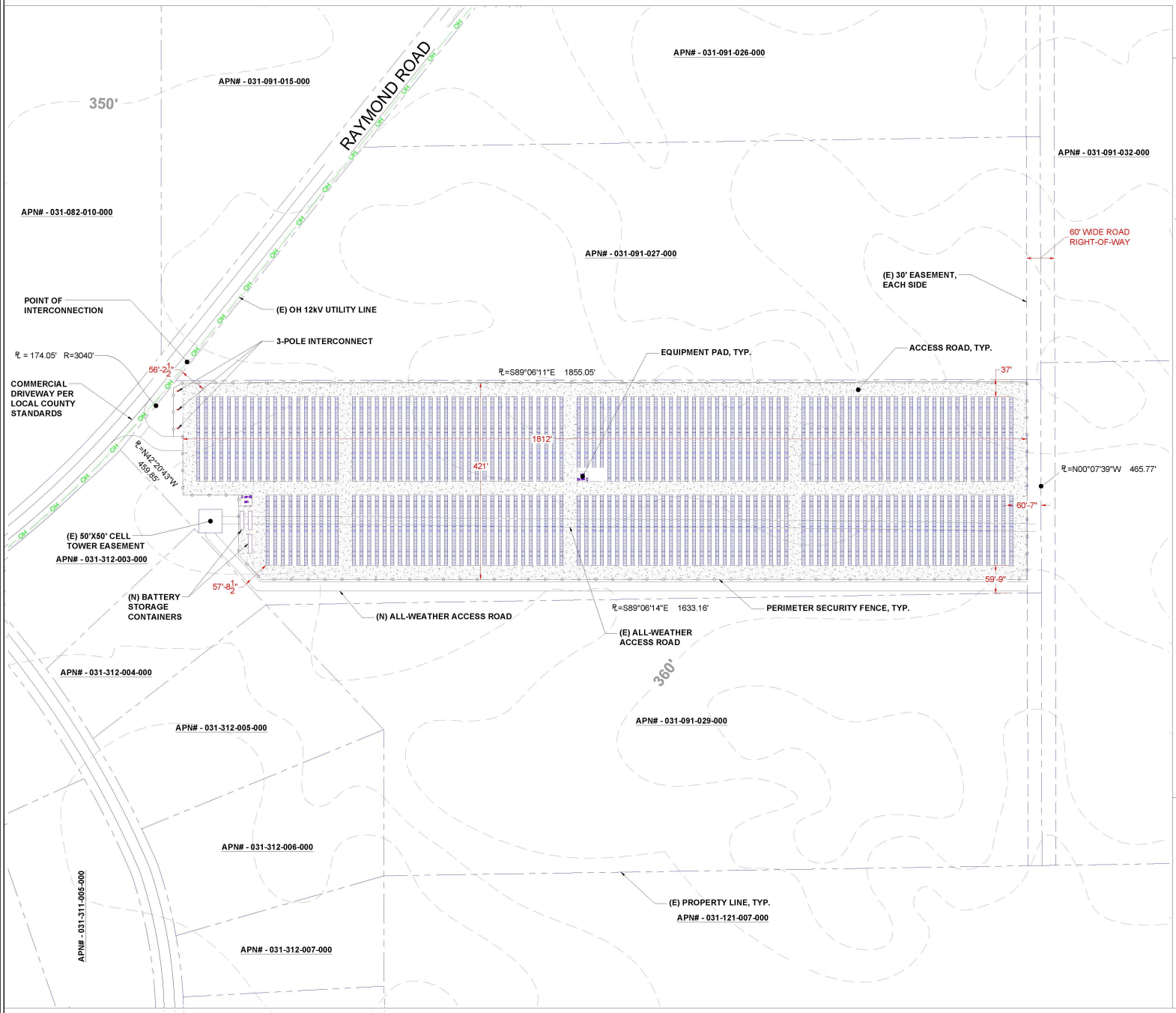
Assessor's Map No. 31–09
Madera Unified School Dist.
County of Madera, Calif.

EXHIBIT C

SITE PLAN MAP



LEGEND

PROPERTY LINE (℄)

ACCESS ROAD

(1) **SITE INFORMATION:**

- **APPLICANT:** APEX ENERGY SOLUTIONS, LLC
- **ASSESSOR PARCEL #:** 031-091-028-000
- **PARCEL ACREAGE:** 19.73 AC.
- **SYSTEM FOOTPRINT:** ~19 AC.
- **SOLAR PANEL SQ. FOOTAGE:** 225,266 Sq. Ft.

SYSTEM INFORMATION:

- **(APPROX. 9,756) 385W PV MODULES**
- **(4) 750KW INVERTERS**
- **HORIZONTAL SINGLE AXIS TRACKER SYSTEM**
- **SYSTEM SIZE:**
  - **3.75 MWDC**
  - **3.00 MWAC**

N

180° True

0 50' 100' 200'

Scale: 1" = 100'

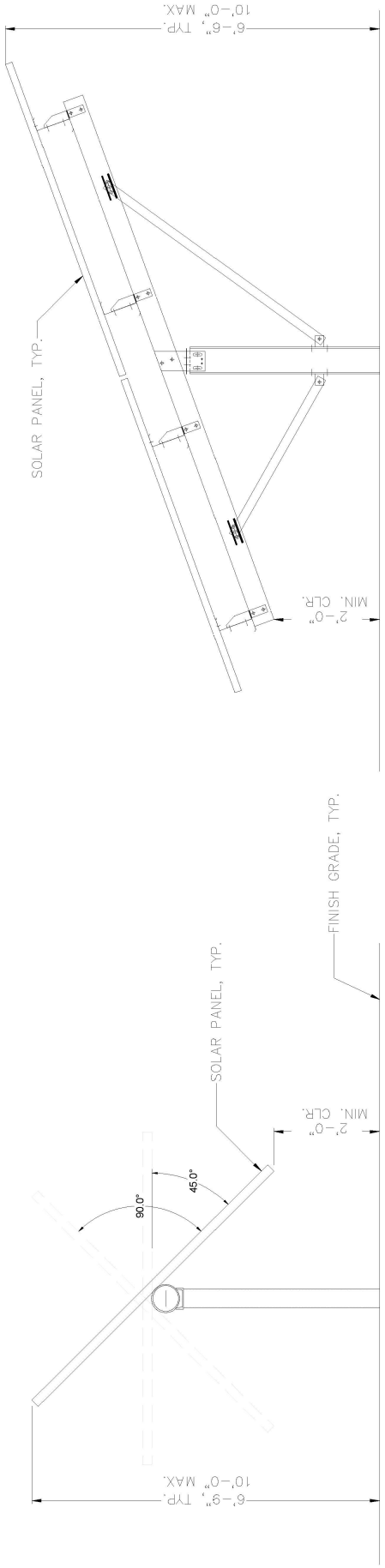
ZGLOBAL
Power Engineering & Energy Solutions

604 SUTTER ST, STE 250
FOLSOM, CA 95630
Phone : 916.985.9461
Fax: 916.985.9467

JADE
SOLAR PROJECT
SITE PLAN

EXHIBIT D-1

EXHIBIT D-2

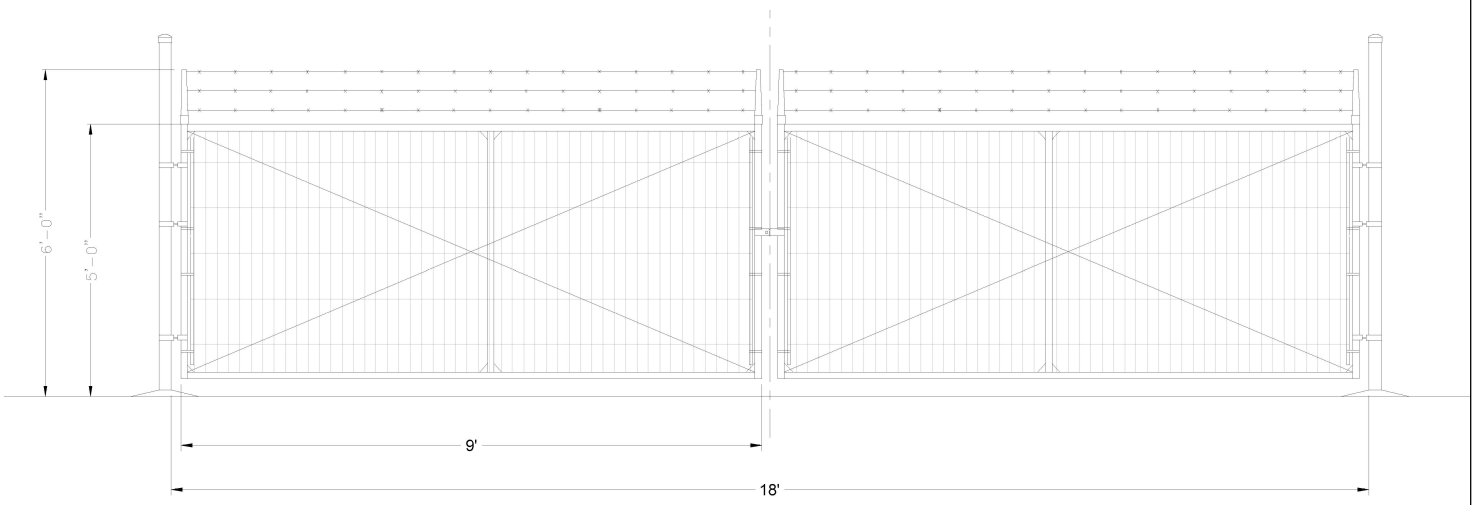


TRACKER OR FIXED-TILT ELEVATION

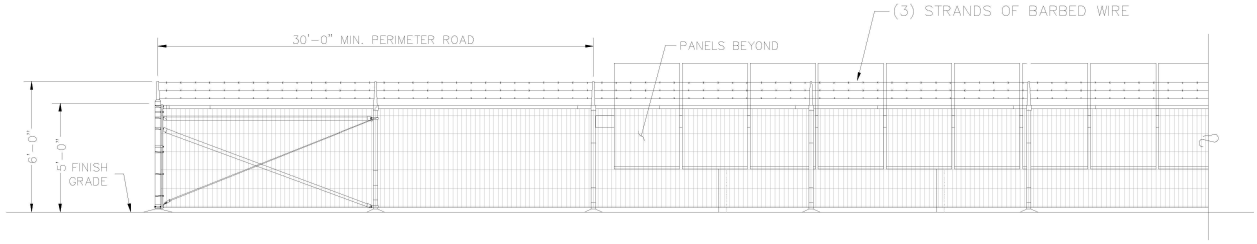
N.T.S.

ELEVATION MAP

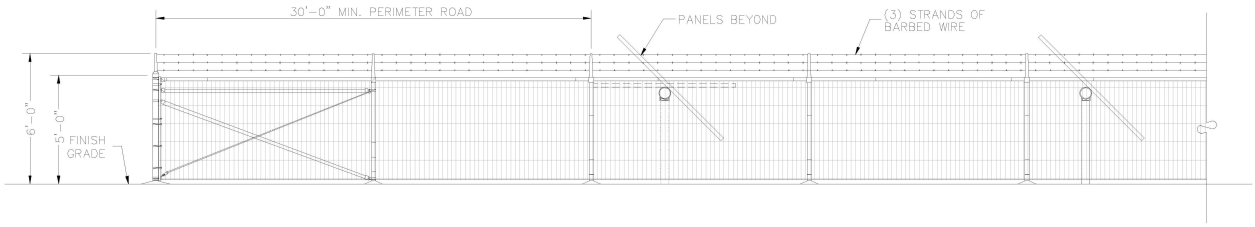
EXHIBIT D-3



BI-DIRECTIONAL GATE ELEVATION
N.T.S.



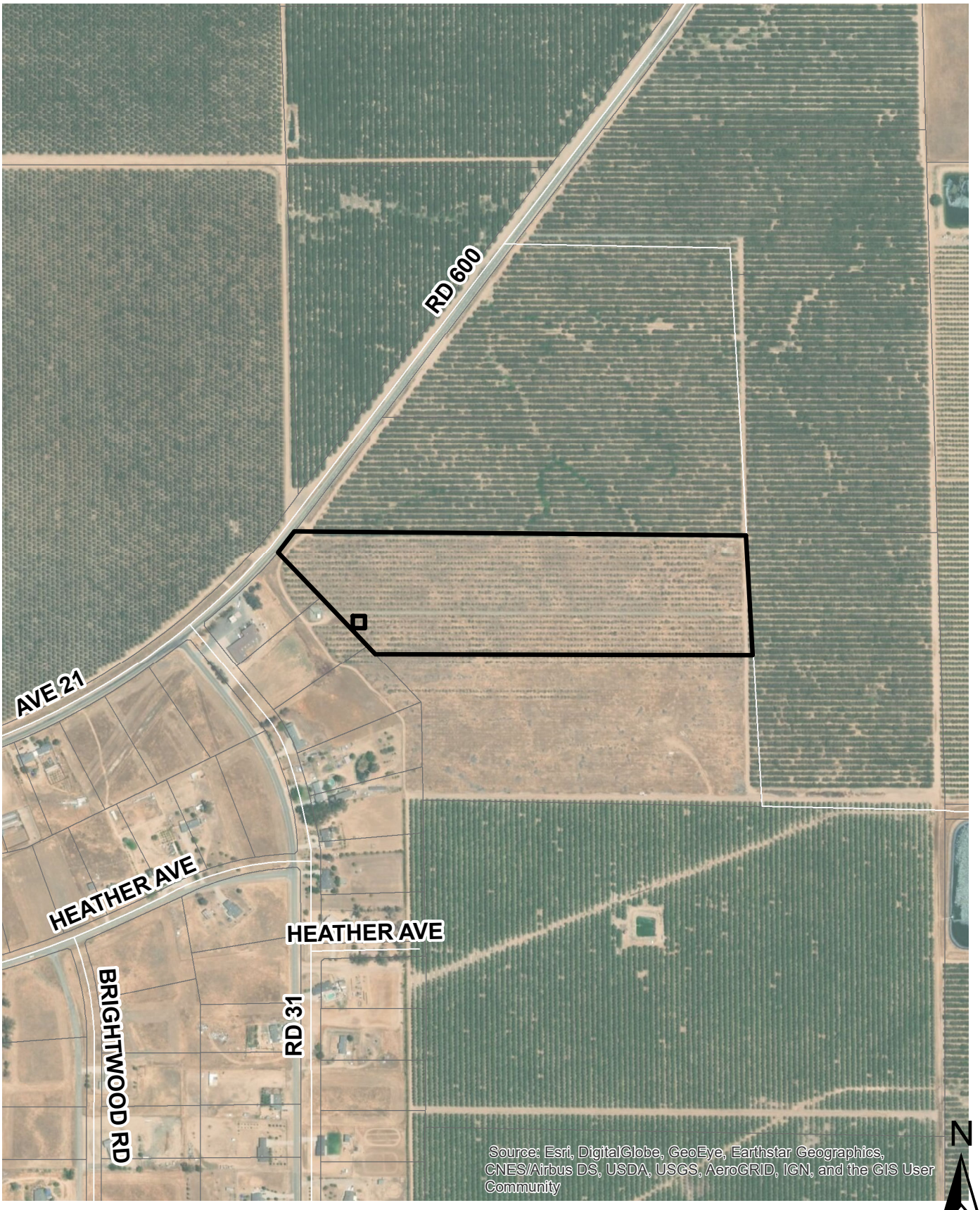
EAST OR WEST PERIMETER ELEVATION, TYP.
N.T.S.



NORTH OR SOUTH PERIMETER ELEVATION, TYP.
N.T.S.

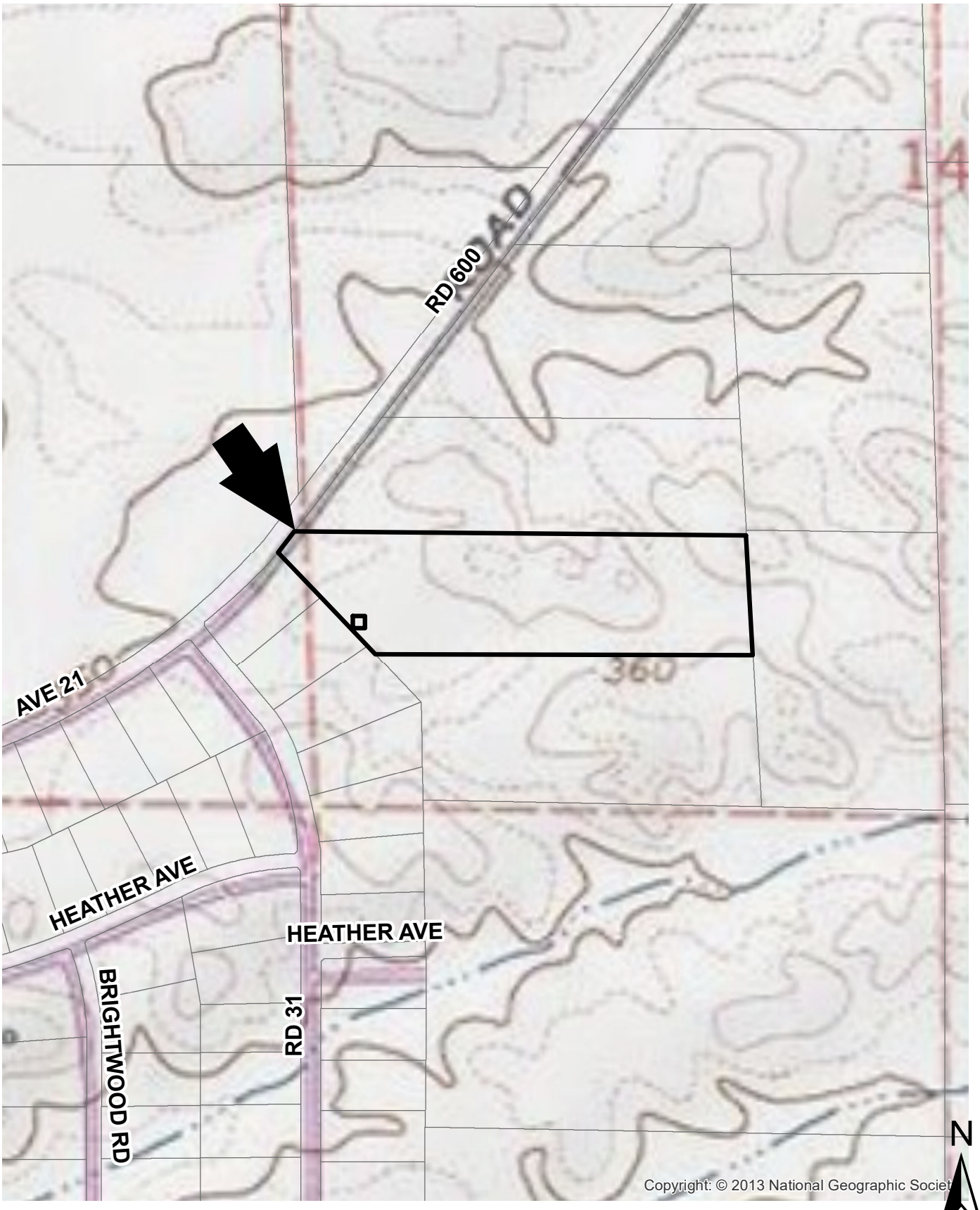
FENCING DETAILS

EXHIBIT E



AERIAL MAP

EXHIBIT F



TOPOGRAPHICAL MAP

Exhibit G

Community and Economic Development
Planning Division

Norman L. Allinder, AICP
Director

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- Suite 3100
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OPERATIONAL/ENVIRONMENTAL STATEMENT CHECKLIST

It is important that the operational/environmental statement provides for a complete understanding of your project proposal. Please be as detailed as possible.

1. Please provide the following information:
   Assessor's Parcel Number: 031-091-038
   Applicant's Name: Apex Energy Solutions, LLC
   Address: 604 Sutter Street, Suite 250, Folsom, CA 95630
   Phone Number: (916) 985-9461 (O) (916) 803-0950

2. Describe the nature of your proposal/operation.
   Construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility occupying up to19 acres of a 19.35 acre parcel tying into the PG&E Storey 1109 12kV Distribution Circuit. The project would help bolster electric reliability in the surrounding vicinity.

3. What is the existing use of the property?
   The site is currently fallowed agricultural land.

4. What products will be produced by the operation? Will they be produced onsite or at some other location? Are these products to be sold onsite?
   The project will produce electricity. Electricity generated by the site would be sold to an electric utility purchaser or via the California Independent System Operator (CAISO) wholesale electricity markets.

5. What are the proposed operational time limits?
   Months (if seasonal): N/A
   Days per week: 7
   Hours (from____to ___): Total Hours per day: None.

6. How many customers or visitors are expected?
   Average number per day: 0
   Maximum number per day: 0
   What hours will customers/visitors be there? NA

7. How many employees will there be?
   Current: None
   Future: During Construction: Up to 30 per day. After Construction: Up to 3 employees for regular maintenance up to 4 times per year
   Hours they work: Daylight hours, typically 6:00am to 6:00pm, Monday through Friday.
   Do any live onsite? If so, in what capacity (i.e. caretaker)? There will no employees living onsite.

8. What equipment, materials, or supplies will be used and how will they be stored? If appropriate, provide pictures or brochures.

During Construction: Graders, compacters, trenchers, backhoes, forklifts, pile drivers, skid steers, front end loaders, material hauling trucks, delivery trucks, 4,000 gallon water trucks.

After Construction: The solar energy storage facility will have equipment consisting of PV modules, 500kW inverters, and fixed-tilt ground mount racking.

9. Will there be any service and delivery vehicles?

Number: During Construction: 4 to 7. After Construction: 1

Type: During Construction: Graders, compacters, trenchers, backhoes, forklifts, pile drivers, skid steers, front end loaders, material hauling trucks, delivery trucks, 4,000 gallon water trucks. After Construction: Washing and servicing truck.

Frequency: During Construction: Most vehicles will stay on site except for a few delivery trucks and the material hauling trucks. After Construction: 1 visit per quarter.

10. Number of parking spaces for employees, customers, and service/delivery vehicles. Type of surfacing on parking area.

During Construction: Parking areas for construction workers and staging and laydown areas for construction materials would be prepared inside the solar field area or in temporary areas nearby within the parcel. Post Construction: There will be 0 designated parking spots located on-site.

11. How will access be provided to the property/project? (street name)

Site access will be provided via Raymond Road

12. Estimate the number and type (i.e. cars or trucks) of vehicular trips per day that will be generated by the proposed development.

Incorporated into project description

13. Describe any proposed advertising, inlcuding size, appearance, and placement.

There is no proposed advertising contemplated for the project.

14. Will existing buildings be used or will new buildings be constructed? Indicate which building(s) or portion(s) of will be utilized and describe the type of construction materials, height, color, etc. Provide floor plan and elevations, if applicable.

There are no existing buildings on the current site and no new buildings are being contemplated for construction.

15. Is there any landscaping or fencing proposed? Describe type and location.

The facility's perimeter would be secured with a 6-foot-tall (minimum) chain link fence with barbed wire added on top for a total height of 7 feet. The security fencing would be wildlife permeable and would comply with recommendations made in Cypher et. al. 2009, "Permeable Fence and Wall Designs that Facilitate Passage by Endangered San Joaquin Kit Foxes" if required and/or recommended by the County to mitigate for any special status species.

16. What are the surrounding land uses to the north, south, east and west property boundaries?

The North, South, and East are all agricultural uses. To the West is a gas station/mini mart with a GP designation of NC and zoned MD-013

17. Will this operation or equipment used, generate noise above other existing parcels in the area?

During construction noise typical of construction equipment during daylight hours will be generated. Post construction, the PV system will operate almost silently and will not generate any noise above other existing parcels in the area.

18. On a daily or annual basis, estimate how much water will be used by the proposed development, and how is water to be supplied to the proposed development (please be specific).

Water required for operation of the project would consist primarily of water consumed by panel washing and small quantities used for dust mitigation. All water required for operation of the project would be provided by tanker trucks. The 4,000-gallon wa and trucked in from offsite sources. The amount of water needed for the two to four washings per year is estimated to be approximately 0.04 to 0.71 acre-feet per year, or approximately 11,600 to 23,200 gallons per year. No chemicals or soaps would b

19. On a daily or weekly basis, how much wastewater will be generated by the proposed project and how will it be disposed of?

During Construction: Wastewater generated during construction would consist primarily of sanitary waste, which would be managed through the use of portable toilets. Other wastewater generated during construction may include storm water runoff and

Post Construction: During operation, the site would be unstaffed, with personnel on site for security and maintenance activities as needed. There would be no sanitary facilities available for workers at the site, including sinks for washing or toilets.

20. On a daily or weekly basis, how much solid waste (garbage) will be generated by the proposed project and how will it be disposed of?

During construction there will be almost no waste as a majority of the components are pre-fabricated. At the construction site, only system assembly will be required.

The installation of all electrical wirings, boxes, switches, and inverters will allow for all of the waste materials to be recycled and reused for other potential projects.

21. Will there be any grading? Tree removal? (please state the purpose, i.e. for building pads, roads, drainage, etc.)

Because of the relatively flat topography at the site, a minimal amount of grading would be required to install PV modules and associated equipment. Additionally, only minor grading would be required for the equipments pads where the

transformer would be located. Any cut and fill as a result of grading due to site topography will be contained within the project site. No removal of soil from the project site is contemplated.

22. Are there any archeological or historically significant sits located on this property? If so, describe and show location on site plan.

There are no archeological or historicaly significant sites identified as being located on this property.

23. Locate and show all bodies of water on application plot plan or attached map.

Incorporated into project plans.

24. Show any ravines, gullies, and natural drainage courses on the property on the plot plan.

Incorporated into project plans.

25. Will hazardous materials or waste be produced as part of this project? If so, how will they be shipped or disposed of?

No hazardous materials will be produced as a part of this project.

26. Will your proposal require use of any public services or facilities? (i.e. schools, parks, fire and police protection or special districts?)

This proposal does not contemplate the regular use of any public services or facilities. Occasional visits from law enforcement may be

necessary due to any calls related to vandalism or theft.

27. How do you see this development impacting the surrounding area?

We see this development as a positive impact in the surrounding area. By having local energy generation via solar and the ability to discharge said energy via the

battery storage system, this project will add a source of stable, reliable energy to the surrounding residents in addition to helping the state achieve renewable energy goals.

28. How do you see this development impacting schools, parks, fire and police protection or special districts?

We do not see this development impacting any of the above, with the exception of the occasional call that may be generated from

vandalism or attempted theft at the project site.

29. If your proposal is for commercial or industrial development, please complete the following; Proposed Use(s):_____

Square feet of building area(s):_____

Total number of employees:_____

Building Heights:_____

30. If your proposal is for a land division(s), show any slopes over 10% on the map or on an attached map.

Incorporated into project plans

Jade Solar Energy Storage Project Operational Statement

Madera County, California

August 2018

Prepared For:

APEX ENERGY SOLUTIONS

Prepared by:

ZGLOBAL
Power Engineering & Energy Solutions
604 Sutter Street, Suite 250
Folsom, California 95630

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1 PROJECT SUMMARY

In an effort to reduce greenhouse gas (GHG) emission and expand the availability of alternative energy resources locally and regionally, the project proponent/applicant, Apex Energy Solutions, LLC ("Apex") proposes to construct and operate the Jade Solar Energy Storage Project on approximately 20 previously disturbed acres. The proposed project site is designated as "Agricultural Exclusive" land use and zoned AEX-40 (Agricultural Exclusive - 40 Acres). The proposed solar and energy storage project would consist of a 3-megawatt (MW) solar photovoltaic (PV) energy generating facility, and would include a 3 MW AC maximum capacity, 4-hour battery energy storage system. At peak production, the 3 MW solar energy storage facility would supply enough clean energy to power up to 1,000 residential homes per year.

This is an application for Madera County ("County") review and approval of a Conditional Use Permit (CUP) for the construction of a solar energy storage facility. The project would be constructed over an up-to fourteen (14)-month period and is anticipated to operate for a period of up to 30 years. After the 30-year project service life, the project would be decommissioned, and the project site returned to its pre-project condition.

Electricity generated by the site would be sold to an electric utility purchaser or another power purchaser under a long-term contract, power purchase agreement (PPA), or via the California Independent System Operator (CAISO) wholesale electricity markets. The proposed project includes the following physical site improvement components:

- Installation of solar PV modules mounted on stationary fixed-tilt ground-mounted racking or single-axis trackers;
- PV panel support structures;
- Battery storage system enclosures;
- Combiner boxes, electrical inverters, and transformers;
- Overhead and buried electrical conduit, transmission, and collection lines;
- Data monitoring equipment;
- All-weather access road;
- On-site, unpaved interior roads and perimeter road; and
- Security fencing.

Table 1-1 Project Statistics

Total Project Site Acreage	Disturbance Areas (acres)	Assessor's Parcel Number	Physical Location	Max PV Megawatts	Max ESS Megawatts
19.73 Acres	Temporary: 19 Acres Permanent: Up to 19 Acres	031-091-038	Section 14, T.10S, R.18E	3 MW	3 MW

2 PROJECT OVERVIEW

Project title:	Jade Solar Energy Storage Project
Lead agency name and address:	Madera County 200 W. 4th St. Suite 3100 Madera, CA 93637
Contact person and phone number:	Planning Staff (559)675-7821 Phone (559)675-6573 Fax
Project Proponent's name and address:	Apex Energy Solutions, LLC 604 Sutter Street, Suite 250 Folsom, CA 95630 (916) 985-9461 (O)
Description of Project:	Proposed development of a 3-megawatt (MW) solar power generating and battery energy storage facility on 19.73 acres of previously disturbed, former agricultural land. The facility would consist of solar photovoltaic modules mounted on fixed-tilt ground-mounted racking or single axis trackers, battery storage system enclosures, electrical inverters, associated transformers, power poles, an access road, and perimeter fencing. The project would feed into existing electrical distribution lines and be decommissioned after 30 years of service.
Project location:	The proposed project occupies a 19-acre portion of a 19.73-acre parcel located southeast of Raymond Road and northeast of Road 31 in Madera County, California (Assessor's Parcel No. [031-091-038]). The subject property site is situated in the unincorporated area of Madera County, California, approximately seven miles east of the City of Madera in Madera County, California. The site corresponds to a portion of Section 14, Township 10 South, and Range 18 East (Mount Diablo Base and Meridian [MDBM]) of the "Daulton" topographic quadrangles 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1962, rev. 1981).
General Plan designation:	AE – Agricultural Exclusive
Zoning:	AEX-40 – Agricultural Exclusive - 40 Acres
Farmland Classification:	Unique Farmland
Williamson Act or Farmland Security Zone:	Farmland Security Zone
FEMA Classification:	Zone X

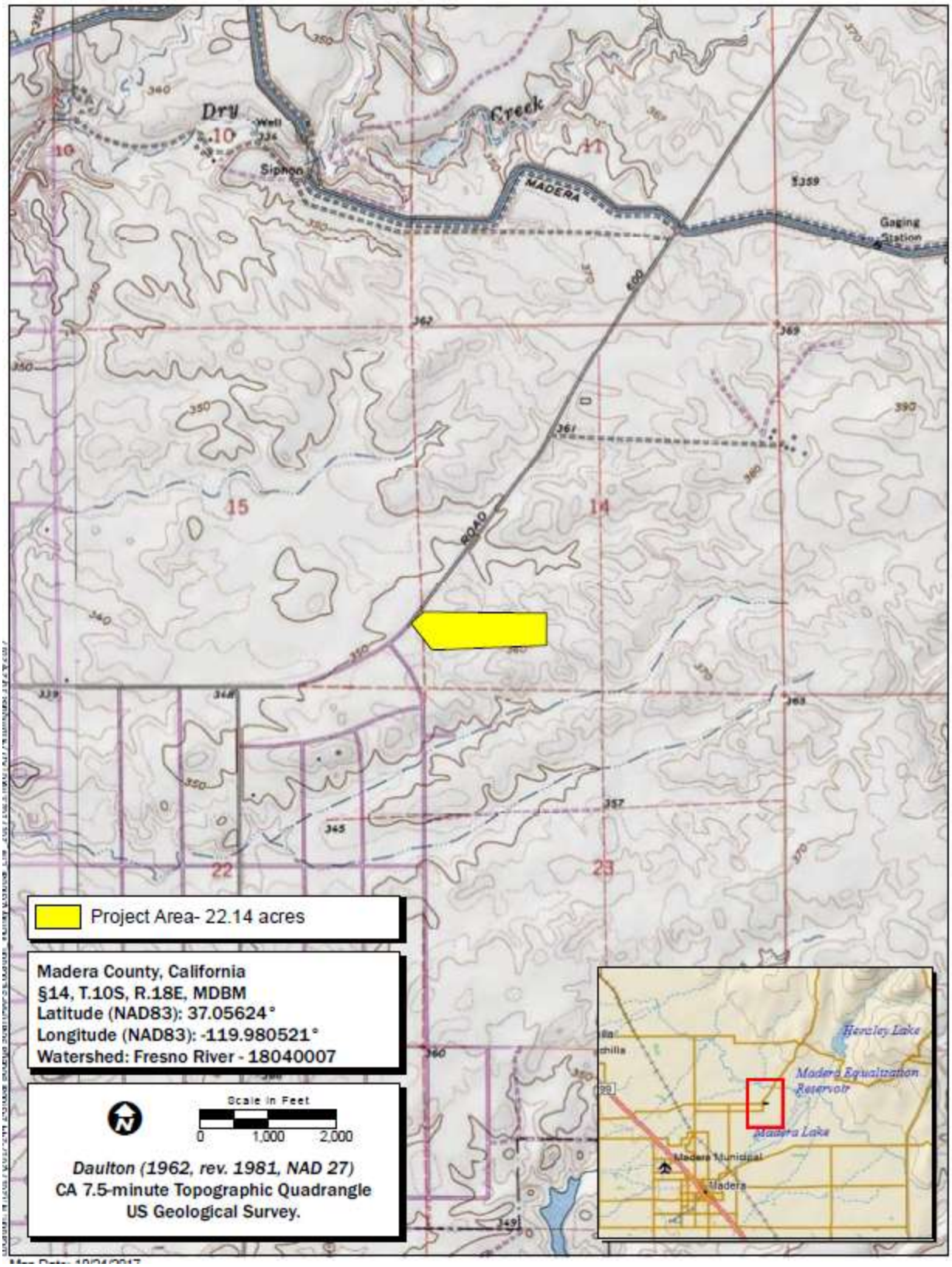

Figure 2-1 Vicinity Map

3 Site Location, Characteristics, and Land Use

3.1 Project Location

The Project site is generally located southeast of Raymond Road and northeast of Road 31 in an unincorporated part of Madera County, approximately seven miles east of the City of Madera in Madera County, California. The Project Area corresponds to a portion of Section 14, Township 10 South, and Range 18 East (Mount Diablo Base and Meridian) of the "Daulton, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1962, rev. 1981) (Figure 1. Project Area Location and Vicinity). The approximate center of the Project Area is located at latitude 37.05624˚ and longitude -119.980521˚ within the Fresno River Watershed (Hydrologic Unit Code #18040007, Natural Resources Conservation Service [NRCS], USGS, and U.S. Environmental Protection Agency [USEPA] 2016).

3.2 Biological Setting

The Project Area is located in an area of rural Madera County with heavy agricultural uses. The site is surrounded by orchard on all sides except for the area to the southwest of the site, which includes a gas station/mini mart and a rural residential area. Topography within the Project Area is relatively flat, with elevations ranging from approximately 350 to 360 feet above mean sea level. The Project Area is currently a fallow fig (*Ficus carica*) orchard with ruderal vegetation along the roads, detention basin, and in the westernmost portion of the site. A cell phone tower and associated control building is located on the southwestern portion of the site with an associated gravel road that travels west-east through the site. A small detention basin to temporarily hold irrigation water is located in the northeastern portion of the site.

3.3 Site Reconnaissance

Prior to conducting the field portion of the assessment, the following species lists were queried to determine the special-status species that had been documented within or in the vicinity of the Project Area. Results of the database searches are included as Appendix A in the *Biological Resources Assessment Report* prepared by ECORP in November 2017.

- CDFW CNDDB for the "Daulton, California" and surrounding eight 7.5-minute USGS quadrangles (CDFW 2017);
- USFWS IPaC Resource Report List for the Project Area (USFWS 2017); and
- CNPS electronic Inventory of Rare and Endangered Plants of California was queried for the "Daulton, California" and surrounding eight 7.5-minute USGS quadrangles (CNPS 2017).

A reconnaissance field site assessment was conducted by ECORP Senior Biologist Keith Kwan on October 20, 2017 Special attention was given to identifying those portions of the site with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring within the Project Area were characterized and the following biological resource information was collected:

- Potential Waters of the U.S.;
- Plant and animal species directly observed;
- Plant communities;
- Animal evidence (e.g., scat, tracks); and

- Burrows and any other special habitat features.

3.3.1 Vegetation Communities and Land Cover Types

Two vegetation communities and one land cover type were documented within the Project Area. The vegetation communities are fallow fig orchard and ruderal, and the land cover type is developed. Descriptions of each are provided below.

A full listing of the vegetation observed during the biological survey along with a full analysis of the potentially occurring special status species can be found in Appendix A of the *Biological Resources Assessment Report* prepared by ECORP in November 2017.

3.3.1.1 Fallow Fig Orchard

The Project Area consists almost entirely of a former fig orchard. The fig trees were recently removed, leaving the field fallow. Several large piles of mulched fig trees are still onsite. The understory vegetation remaining in the fallow fig orchard is ruderal, described below. One detention basin, which was used for irrigation purposes is located at the northeast corner of the Project Area and is no longer in use.

3.3.1.2 Ruderal

Ruderal vegetation occurs along roadside edges, along the edges of the detention basin, and also characterizes what remains of the understory vegetation in the fallow fig orchard. Ruderal vegetation is dominated by nonnative grasses and forbs including wild oat (*Avena fatua*), prickly lettuce (*Lactuca serriola*), soft brome (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), and red brome (*Bromus madritensis*).

3.3.1.3 Developed

The developed areas within the Project Area includes a gravel road that runs west-east throughout the Project Area and a cell phone tower and associated enclosure in the central western portion of the site. This road extends from the cell phone tower to a rural farm road that runs north to south between adjacent orchards.

3.4 Wildlife

Wildlife species observed within the Project Area during the October 20, 2017 site visit included American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), California scrub-jay (*Aphelocoma californica*), American pipit (*Anthus rubescens*), yellow-rumped warbler (Audubon's) (*Setophaga coronata*), house finch (*Haemorhous mexicanus*), and western meadowlark (*Sturnella neglecta*).

A full listing of the wildlife observed during the biological survey along with a full analysis of the potentially occurring special status species can be found in the *Biological Resources Assessment Report* prepared by ECORP in November 2017.

3.5 Paleontological or Historical Resources

3.5.1 Records Search

Prior to conducting the field portion of the assessment, a detailed records investigation a records search was conducted at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS). The purpose of the records search was to determine the extent of previous surveys

within a 0.5-mile (800-m) radius of the proposed project location, and whether previously documented prehistoric or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. The records search consisted of a review of previous research and literature, records on file with the (ACRONYM) for previously recorded resources, and historical aerial photographs and maps of the vicinity.

In addition to the official records and maps for archaeological sites and surveys in Madera County, the following historic references published by the California Office of Historic Preservation were also reviewed: Historic Property Data File for Madera County, National Register of Historic Places, the California Register of Historical Resources, and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, Directory of Properties in the Historical Resources Inventory, Listing of National Register Properties, and the Inventory of Historic Structures.

Finally, the California Native American Heritage Commission (NAHC) was contacted to request a search of the Sacred Lands File for the Area of Potential Effects (APE).

The results of the records search indicate that none of the property or land within the records search radius has been previously surveyed for cultural resources, and therefore, a pedestrian survey of the Project Area was conducted. In addition, no cultural resources were recorded within the records search radius or Project Area.

3.5.2 Field Survey Results

An intensive pedestrian survey, designed to identify historic and prehistoric sites and artifacts within the Jade Solar Energy Storage Project Area, was conducted by ECORP Associate Archaeologist Megan Webb on November 8, 2017.

As a result of the pedestrian survey, no cultural resources were identified within the Project Area. Therefore, no Historic Properties for Section 106 purposes or Historical Resources as defined by CEQA will be affected by the proposed Project. The recently disturbed and modified landscape in the Project Area provides indication of past agricultural activities.

A full analysis of results from the records search and field survey can be found in the *Cultural Resources Inventory Report* prepared by ECORP in November 2017.

3.6 Soils and Topography

According to the Web Soil Survey (Natural Resources Conservation Service [NRCS] 2017), one soil unit, or type, has been mapped within the Project Area:

- CuB – Cometa sandy loams, 3 to 8 percent slopes

Cometa sandy loams, 3 to 8 percent slopes (CuB) is considered hydric when occurring in depressions (NRCS 2017b).

3.7 Potential Waters of the U.S.

There are no potential wetlands or other Waters of the U.S. located within or directly adjacent to the Project area.

3.8 Surrounding Land Uses

The project site has a Madera County General Plan designation of A (Agriculture). The entire site is zoned AG 40 (General Agricultural-40 District) pursuant to the Madera County Zoning Ordinance. The site is generally surrounded by orchard on all sides except for the area to the southwest of the site, which includes a gas station/mini mart and a rural residential area. Table 3-1 summarizes the existing land uses and zoning on the project site and in the immediate vicinity.

Table 3-1 Existing Land Uses

Location	Present Land Use	Existing General Plan Designation	Existing Zoning
Project Site	Fallowed fig orchard	AE – Agricultural Exclusive	AEX-40
North	Orchard	AE – Agricultural Exclusive	AEX-40
South	Orchard	AE – Agricultural Exclusive	AEX-40
East	Orchard	A - Agricultural	AG 40
West	Gas Station/Mini Mart	NC - Neighborhood Commercial	MD- 013

3.9 Farmland Classification

The project site is located within an area designated by the California Department of Conservation (DOC) as Unique Farmland, consisting of farmland of lesser quality soils used for the production of the state's leading agricultural crops.

3.10 FEMA Classification

The project site is located within Federal Emergency Management Agency (FEMA)–designated Flood Zone “X,” indicating that the site is outside of the 100-year flood hazard area. Therefore, the site is located within FEMA–designated areas of minimal flood hazard, which are areas outside of the Special Flood Hazard Area (SFHA) and higher than the elevation of the 0.2-percent-annual-chance flood.

3.11 County Services

The site is located within the boundaries of the Lake Madera Country Estates.

4 PROJECT PURPOSE AND OBJECTIVES

The applicant's primary purpose of the proposed solar project is to generate clean, renewable, electrical power using field-proven solar PV technology and to integrate the electrical output of the PV solar plant with energy storage for controlled injection of energy onto the electrical grid. The electricity produced by the proposed project would be sold to an electric utility purchaser or another power purchaser under a long-term contract, power purchase agreement (PPA), or via the California Independent System Operator (CAISO) wholesale electricity markets.

Apex Energy Solutions, LLC has identified the following additional objectives to complement the primary purpose of the proposed project:

- Develop a utility-scale solar and battery energy storage project that improves local electrical reliability for the Madera County region by providing a source of local generation as near as possible to existing electrical distribution infrastructure and customer loads.
- Assist California in meeting its current and future Renewable Portfolio Standard goals.
- Support the greenhouse gas reduction goals of Assembly Bill 32 (California Global Warming Solutions Act of 2006).
- Provide a new source of energy storage that assists the state in achieving or exceeding the energy storage target of 1.3 gigawatts by 2020, consistent with the terms of Assembly Bill (AB) 2514.
- Site the Project in an area with excellent solar energy resources in order to maximize productivity from the PV panels.
- Use a proven and available solar PV technology to reliably and economically produce electricity during daylight hours.
- Minimize environmental impacts by:
    - Constructing and operating the solar power facility adjacent to existing and approved solar facilities and existing supporting infrastructure (transmission lines and roads).
    - Using existing electrical distribution facilities, rights-of-way, roads, and other existing infrastructure where practicable,
    - Minimizing or mitigating impacts on threatened and/or endangered species,
    - Minimizing water use; and
    - Reducing greenhouse gas emissions by providing an alternate source of renewable energy.
- Create additional employment and project-related expenditures for local businesses.

5 PROPOSED PROJECT

The project site consists of a 19-acre portion of an approximately 19.73-acre parcel located within Section 14, Township 10 South, and Range 18 East (Mount Diablo Base and Meridian [MDBM]). The site is surrounded by orchard on all sides except for the area to the southwest of the site, which includes a gas station/mini mart and a rural residential area. See Figure 2-1 (Vicinity Map). Topography within the Project Area is relatively flat, with elevations ranging from approximately 350 to 360 feet above mean sea level. Figure 5-3 (Proposed Site Plan) shows the major components of the facility, and Figure 5-13 (3-Pole Interconnection Detail) provides details about the proposed interconnection.

Major components of this commercial solar energy storage project include PV modules mounted on stationary fixed-tilt ground-mounted racking or single-axis trackers, battery storage system enclosures, inverters and transformers, an electrical collection and distribution system (Figure 5-11), internal access roads, fencing, data monitoring equipment, and required utility interconnection facility, distribution, and/or network upgrades.

Construction of the project would require temporary containers with equipment in designated areas. The areas would be prepared with a compacted road base that would allow trucks to enter the site and deliver materials. During construction, the foundations for the racking system(s) may require the use of a pile driver. It is anticipated that the workforce during the construction period would peak at 30.

During project operations, two or three offsite employees would be reserved for maintenance and would be dispatched to the site for routine scheduled maintenance and on an as-needed basis for unscheduled maintenance. Vehicles for operation and maintenance would typically include trucks such as pickups or flatbeds, as well as water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the site infrequently for equipment repair or replacement.

Major freeways and highways that could be used to access the project site include State Route 145 and Highway 99, with direct access to the site proposed via a farm road accessed from Avenue 21/Raymond Road.

5.1 Project Characteristics

The project would operate year-round and generate electricity during daylight hours. In addition, the project would consist of the following components:

(1) PV modules,
(2) mounting structures,
(3) battery storage system enclosures,
(4) inverters and transformers,
(5) an electrical collection and distribution system,
(6) access roads and fencing,
(7) data monitoring equipment, and
(8) required utility upgrades.

These components are shown in Figure 5-3 Proposed Site Plan.

5.1.1 Solar Photovoltaic Technology

Solar PV cells (solar cells) convert sunlight into electricity. Solar PV panels can be mounted at a fixed angle, facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Individual PV modules would be connected in series to create a "string" that would carry DC electricity. For large electric utility or industrial applications, hundreds of strings are interconnected to form a large utility-scale PV system.

High-efficiency solar cells are made from crystalline silicon and are usually flat. Second-generation solar cells are called "thin-film" solar cells because they are made from amorphous silicon or non-silicon materials such as cadmium telluride. Other experimental solar cells are being made from a variety of new materials besides silicon, including solar inks that use conventional printing-press technologies, solar dyes, and conductive plastics. Some solar cells use plastic lenses or mirrors to concentrate sunlight onto a very small piece of high-efficiency PV material. The PV material is more expensive, but because so little is needed, these systems are becoming cost-effective for use by utilities and industry in areas where direct global horizontal insolation is high.

5.1.2 Insolation

Insolation is a measure of solar radiation energy received on a portion of the Earth's surface area at a given time. The name comes from a combination of the words "incident solar radiation". It is commonly expressed as average irradiance in watts per square meter (W/m^2) or kilowatt-hours per square meter per day (kWh/m^2 [or hours/day]). As illustrated below, California generally receives between 5½ and 7 kilowatt-hours per square meter per day of solar radiation energy.

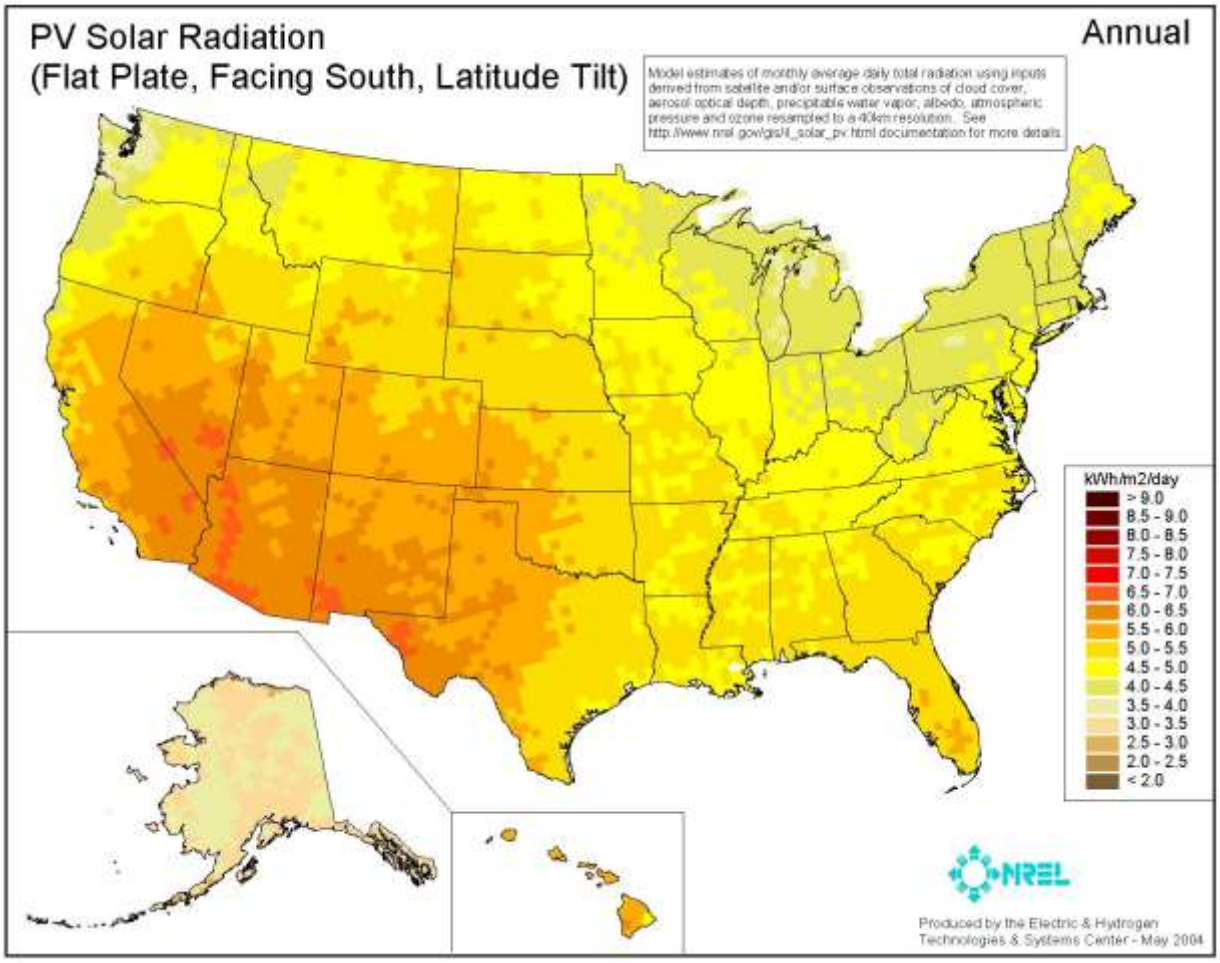

Figure 5-1 NREL PV Solar Radiation

5.2 Project PV Components

As part of site design (see Figure 5-3), any sensitive biological and/or hydrological features would be buffered by a minimum 50-foot setback.

5.2.1 PV Modules

The PV technology proposed for this project would be Polycrystalline Solar Modules. The PV modules are non-reflective and would convert sunlight into DC electricity to supply the electrical grid. The PV modules would consume no fossil fuels and emit no pollutants during operation. PV power-generating facilities consist of PV panels mounted on metal support structures. The project would utilize either stationary fixed-tilt ground-mounted racking or single-axis trackers to connect the PV modules to the foundations. The PV modules would be mounted in rows.

5.2.2 Support Structures

Racking refers to the support structure to which the solar PV modules are affixed that allows them to be properly positioned for maximum capture of the sun's solar energy. The project would utilize either stationary fixed-tilt ground-mounted racking or single-axis trackers for its mounting structures. The chosen racking solution would be constructed to allow sufficient space to provide for module cleaning, plant maintenance, and

personnel access. The size and depth of any support structures required for the racking would be based on the recommendations of the Geotechnical Report prepared for the project and the accompanying structural engineering analysis. The PV module arrays' final elevations from the ground would be determined during the detailed Project design process; however, for the purpose of the analysis, maximum height above the ground surface or base flood elevation (BFE, if applicable) would be no higher than ten (10) feet. It is common practice to maintain as low of an elevation profile as possible to reduce potential wind loads on the PV module arrays.

5.2.2.1 Fixed-Tilt Ground-Mount Racking

The fixed-tilt ground-mounted racking system would be arranged east to west, which would keep the PV modules pointed south to maximize exposure to the sun over the course of each day. The fixed-tilt ground-mounted racking would be supported by galvanized steel piles, helical screws, ballasted concrete blocks, or equivalent.

5.2.2.2 Single-Axis Tracker Racking

The single axis trackers would utilize a motor to rotate up to 60 degrees each direction from east to west to follow the daily motion of the sun. The trackers would be configured into blocks (or arrays). The trackers would be supported by torque tubes, which are in turn supported by galvanized steel piles driven to the number of feet below the lowest adjacent ground surface that is appropriate for the site conditions.

5.2.3 Inverters, Transformers, and Associated Equipment

Inverters are a key component of solar PV power-generating facilities because they convert the DC power generated by the PV module array into AC power that is compatible for use with the utility's distribution system or transmission network. Dependent upon final design and market conditions, the project would utilize either central inverters or string inverters.

5.2.3.1 Central Inverters

Individual PV modules would be connected in series to create a "string" that would carry DC electricity. Multiple strings would be brought together in a combiner box. Here, the strings would be merged to create a single cable. Multiple output cables from combiner boxes would be routed along an underground trench system consistent and compliant with National Electric Code (NEC) recommendations and/or requirements to a central pad-mounted power station. At the power station, central power inverters would convert the DC electricity to usable alternating current (AC) electricity. This AC electricity would then be transmitted to a step-up transformer, also located on the central pad, which would convert it from the inverter voltage to the identified distribution-level voltage for the designated utility circuit. All electrical equipment would be either outdoor rated or mounted within electrical enclosures designed specifically for such outdoor installations.

5.2.3.2 String Inverters

Individual PV modules would be connected in series to create a "string" that would carry DC electricity. Multiple strings would be fed into string inverters located throughout the site that would convert the DC electricity to usable alternating current (AC) electricity. Multiple AC output cables from string inverters would be routed along an underground trench system consistent and compliant with National Electric Code (NEC) recommendations and/or requirements to AC load center(s). Once combined at each load center, the AC electricity would then be transmitted to a step-up transformer, located on the central pad, which would convert it from the inverter

voltage to the identified distribution-level voltage for the designated utility circuit. All electrical equipment would be either outdoor rated or mounted within electrical enclosures designed specifically for such outdoor installations.

5.3 Energy Storage System Components

As part of the project, a battery energy storage system (BESS or ESS) would be constructed adjacent to the solar facility within the site footprint to provide energy storage and discharge capabilities under various operating conditions. The ability to store energy would improve the project's operability and enhance the integration of as-available solar-generated energy resources into the transmission and distribution network by offering additional ramp rate control and more consistent energy flows. The proposed BESS or ESS would provide a maximum capacity of 3 MW over a 4-hour period for a total energy reservoir of 12 MWhs.

The energy storage system would consist of 3 direct current (DC) coupled modular battery storage system structures, each situated in an enclosure measuring approximately up to 53 feet long, 8 feet wide, and 10 feet high. Each enclosure would house arrays of lithium ion (Li-ion) batteries in an open-air style racking (similar to computer racking) 7 to 9 feet high with associated wiring and controls. Each enclosure will also have a fire rating in conformance with County standards and have specialized fire suppression systems installed for the battery compartments. All non-battery compartments would have County approved standard sprinkler systems. The structure would also have HVAC cooling in areas with batteries to maintain energy efficiency as required. Power to the HVAC, lighting, etc. would be provided via a connection to the on-site station service transformer with connection lines installed above and/or below ground. The energy storage system would be unstaffed and would have remote operational control and periodic inspections/maintenance performed as necessary. The key components of the battery storage system are described below:

5.3.1 Batteries

Individual Li-ion cells form the core of the battery storage system. Cells are assembled either in series or parallel connection in sealed battery modules. The cells would have an operating DC voltage ranging from two (2) to six (6) volts, while the battery modules would have a DC voltage range between 40 to 120 volts. The battery modules would be installed in self-supporting racks electrically connected either in a series or parallel to each other. The operating rack-level DC voltage ranges between 400 and 1,500 volts. The individual battery racks are connected in series or parallel configuration to deliver the battery storage system energy and power rating.

5.3.2 Battery Storage System Enclosure and Controller

The battery storage system enclosure would house the batteries described above, as well as the battery storage system controller. The battery storage system controller is a multi-level control system designed to provide a hierarchical system of controls for the battery modules, power conversion system (PCS), medium voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the battery storage system effectively responds to grid conditions. The battery storage system enclosure would also house required heating, ventilation, and air conditioning (HVAC) as required, and fire protection systems.

5.3.3 Power Conversion System

The PCS consists of an inverter, protection equipment, DC and alternating current (AC) circuit breakers, filter equipment, equipment terminals, and connection cabling system. DC coupled battery storage systems have

batteries connected on the DC side of central inverters. The general configuration would consist of both solar PV strings and batteries feeding into the DC side of central inverters as shown in **Error! Reference source not found.**. These central inverters could be hybrid inverters exclusively designed for DC coupling with the capability to connect to both solar PV panels and batteries or be augmented with a DC to DC converter connecting to the batteries on the DC side or any other equivalent DC coupled design. The system design may allow for the batteries to be charged from both the solar PV panels only or grid only or a combination of both. Electric energy is transferred from the solar PV or the existing power grid to the project batteries during a battery charging cycle and from the project batteries to the power grid during a battery discharge cycle. The batteries are charged or discharged by a battery management system depending on the command from the plant level controller.

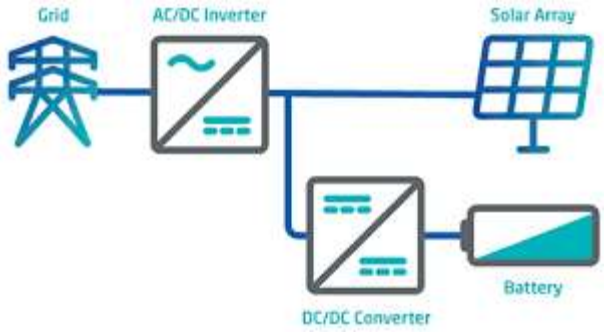

Figure 5-2 DC Coupled ESS Configuration

http://blog.fluenceenergy.com/energy-storage-ac-dc-coupled-solar

5.3.4 BESS Transformer(s)

AC output from the PCS would be transmitted to a step-up transformer, located on the central pad, which would convert it from the inverter voltage to the identified distribution-level voltage for the designated utility circuit. All electrical equipment would be either outdoor rated or mounted within electrical enclosures designed specifically for such outdoor installations

5.4 Electrical Collection and Distribution System

The medium-voltage power would be conveyed underground, or aboveground where necessary to cross over any sensitive site features. The project interconnection facilities would connect to the existing utility approved point of interconnection (POI). The project interconnection facilities design would meet all necessary utility standards and requirements. All required electrical breaker systems and protective relay systems would be installed as part of the project. Surge arrestors would be used to protect the facility and auxiliary equipment from lightning strikes or other disturbances, as required.

5.5 Plant Control System

The project would have a Supervisory Control and Data Acquisition (SCADA) system that would allow for remote monitoring and control of inverters and other project components. The SCADA system would be able to monitor project output and availability, and to run diagnostics on the equipment. The project would also have a local overall real time automated controller (RTAC) that would provide monitoring of the solar field as well as control of the balance of facility systems. The microprocessor-based RTAC 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 RTAC components so that no single component failure would cause a plant outage. All field instruments and controls would be hardwired to local electrical panels. Local panels would be hard-wired to the plant RTAC. Wireless technology would be considered as a potential alternative during final project design.

5.6 Access and Interior Roads

The project site would contain a network of access roads. An all-weather access road would be up to 30 feet wide for ingress and egress and capable of supporting Madera County fire protection vehicles. The access point would be gated and keyed to prevent unauthorized access to the site. An all-weather road up to 20 feet wide would run the perimeter of the project footprint and between the arrays as needed. Interior roads would have a minimum width of 14 feet. The network of unpaved interior roads would run between power blocks as needed to facilitate installation, maintenance, and periodic cleaning of the solar modules.

5.7 Water Requirements

The primary water demand during operation would be the washing of the PV modules to remove dust to maintain power generation efficiency. The amount of water needed for this purpose is conservatively estimated at 0.0075-acre-feet per washing, with up to four washings per year, or a total of up to 0.3 acre-feet of water annually. The necessary water would be trucked in via a 5,000-gallon water truck and each washing is anticipated to take up to one week to complete. No soaps would be used in the cleaning process.

5.8 Site Drainage and Stormwater Control

Any required site drainage and storm water control will be designed to comply with the California State Water Resources Control Board general guidelines.

5.9 Landscaping

No landscaping is contemplated in the project design.

5.10 Fencing, Security, and Lighting

5.10.1 Fencing

To ensure the safety of the public, the facility's perimeter would be secured with a 6-foot-tall (minimum) chain link fence with barbed wire added on top for a total height of 7 feet. The security fencing would be wildlife permeable and would comply with recommendations made in Cypher et. al. 2009, "Permeable Fence and Wall Designs that Facilitate Passage by Endangered San Joaquin Kit Foxes" if required and/or recommended by the County to mitigate for any special status species.

5.10.2 Site Security

Controlled-access gates would be located at the main entrance to the site. These would either be swinging or sliding gates, with a minimum width of 20 feet, as required for access by the property owner(s) and for the convenience of the proponent in accessing and maintaining their facilities; this access point would be keyed, and a KNOX lock or box installed to prevent unauthorized access to the project site. All easements already recorded would be honored. Additional site security measures may include a monitored camera system designed to cover

the entire facility. This system would be remotely monitored, and security breaches would be reported to emergency responders as well as site operations. An intrusion detection system may be installed along perimeter fences to alert monitors of fence breaches. A camera working in conjunction with the fence intrusion system would decrease the number of false positives reported. Furthermore, the proposed project would comply with North American Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) requirements for regulatory control and security systems.

5.10.3 Site Lighting

Project lighting, triggered by motion sensors, may be installed at ingress and egress gates and at strategic locations around the facility. All project lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. Project lighting would conform to National Electric Safety Code (NESC) requirements and all applicable outdoor lighting codes per the local ordinance.

5.10.4 Signage

Signs warning of high voltage danger and citing 18 USC 1366 would be posted along the perimeter fence at regular intervals and at all ingress and egress points. These signs would also include a no trespassing statement. Signage would identify the project operator and owner and provide emergency contact information. All signage would conform to local ordinance signage requirements.

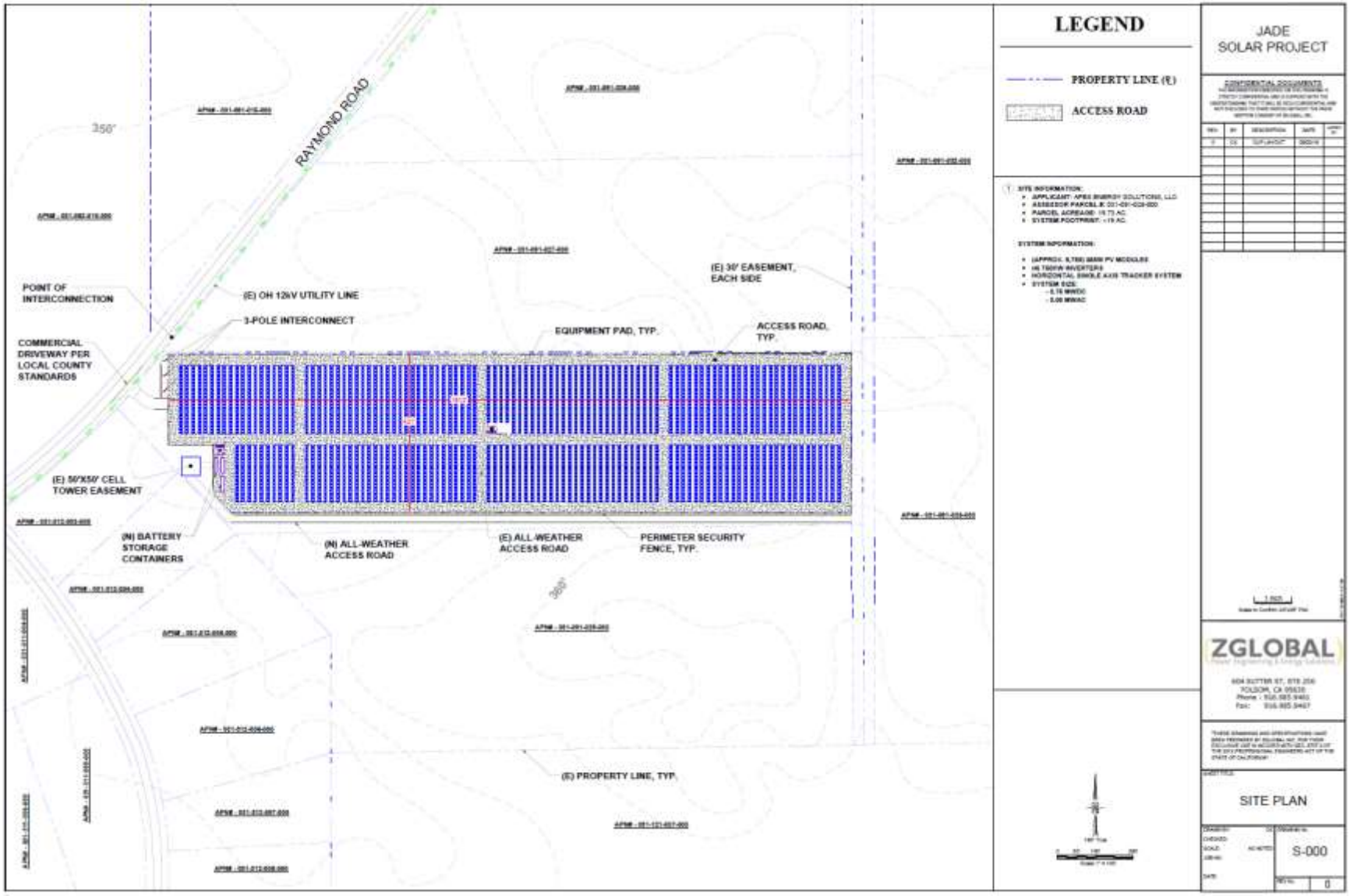

Figure 5-3 Proposed Site Plan

Figure 5-4 Representative Fixed Tilt Installation (Front View of Modules)

Figure 5-5 Representative Fixed Tilt Installation (Side View of Racking and Modules)

Figure 5-6 Representative Fixed Tilt Installation (Back View of Modules)

Figure 5-7 Representative Single Axis Tracker Installation (Front View of Racking and Modules)

Figure 5-8 Representative Single Axis Tracker Installation (Back and Side View of Racking and Modules)

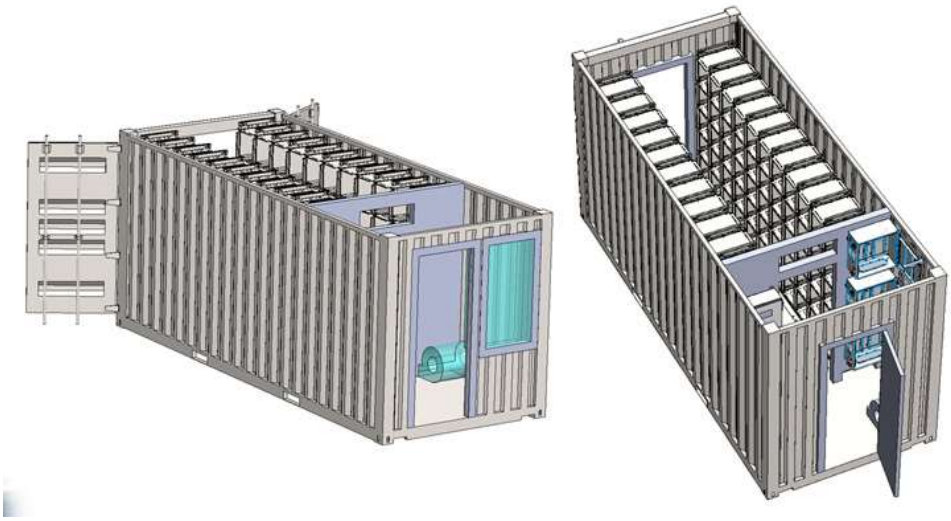

Figure 5-9 Representative Battery Storage System Enclosure (3D Simulation)

Figure 5-10 Representative Battery Storage System Enclosure (Exterior View)

Please note that the above photos are included to convey a representation of the finished installation aesthetics from an equipment perspective and are not intended to convey a representation of the post-construction and/or operational site conditions.

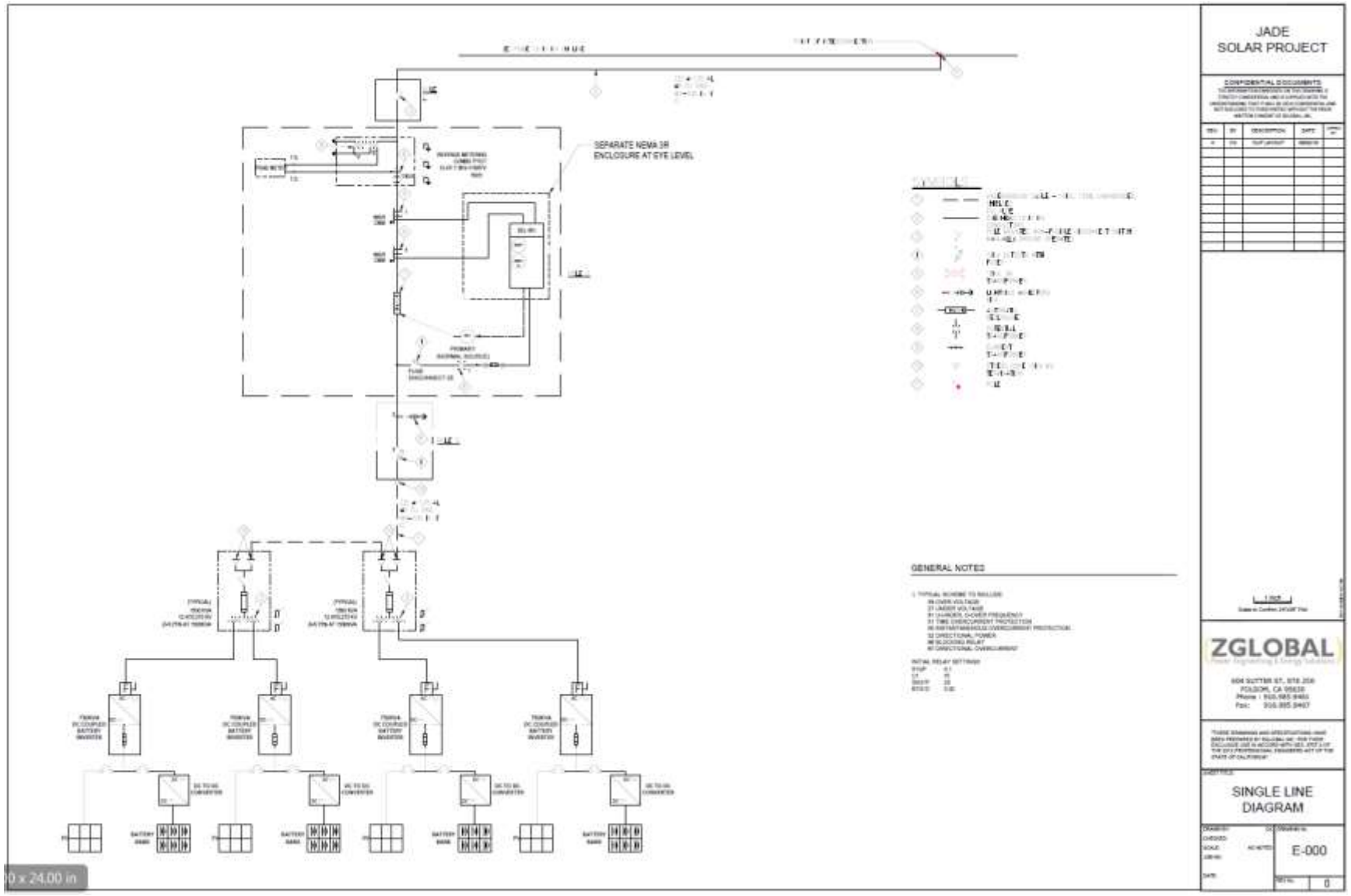

Figure 5-11 Single Line Diagram

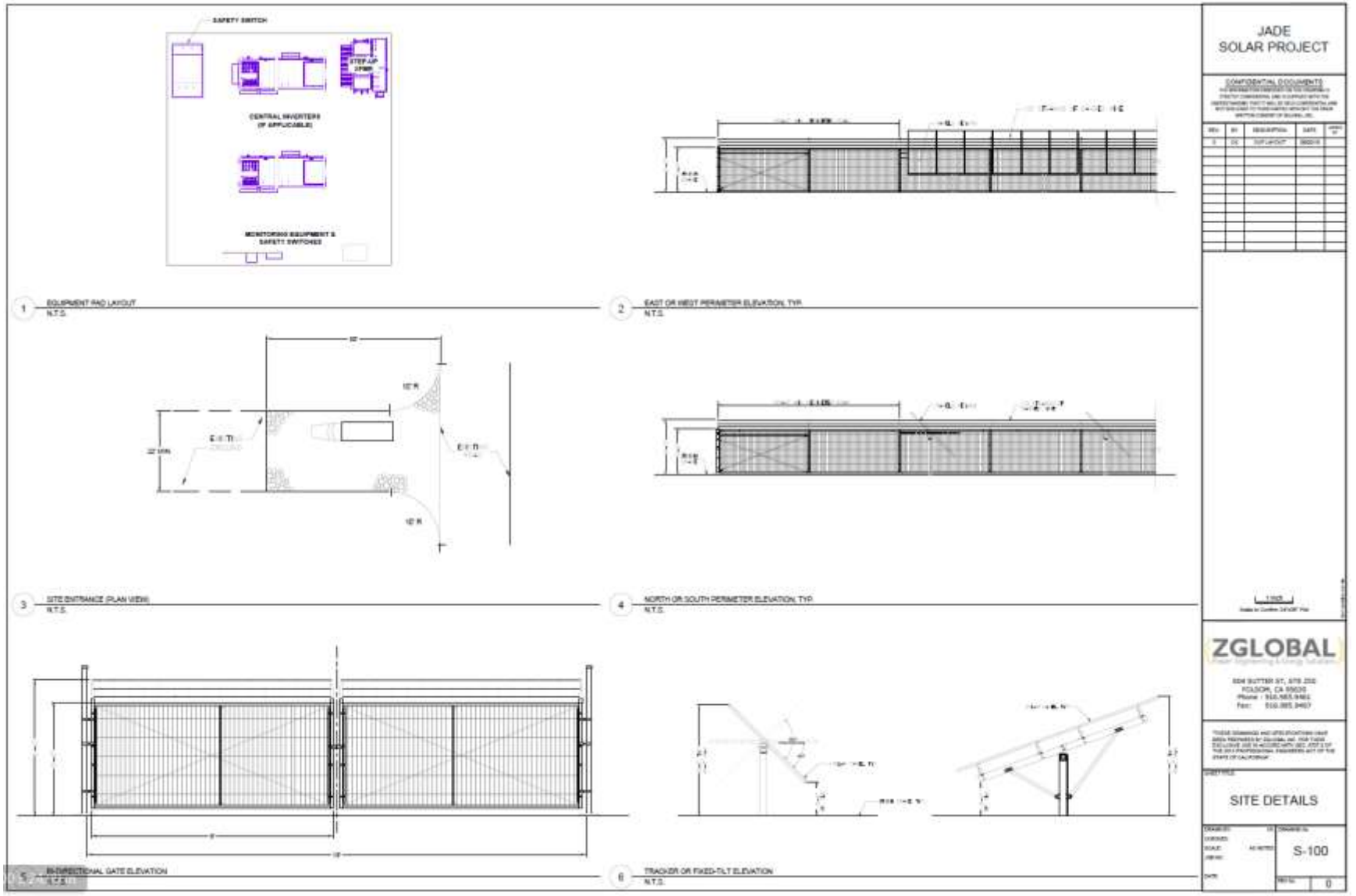

Figure 5-12 Elevations and Details

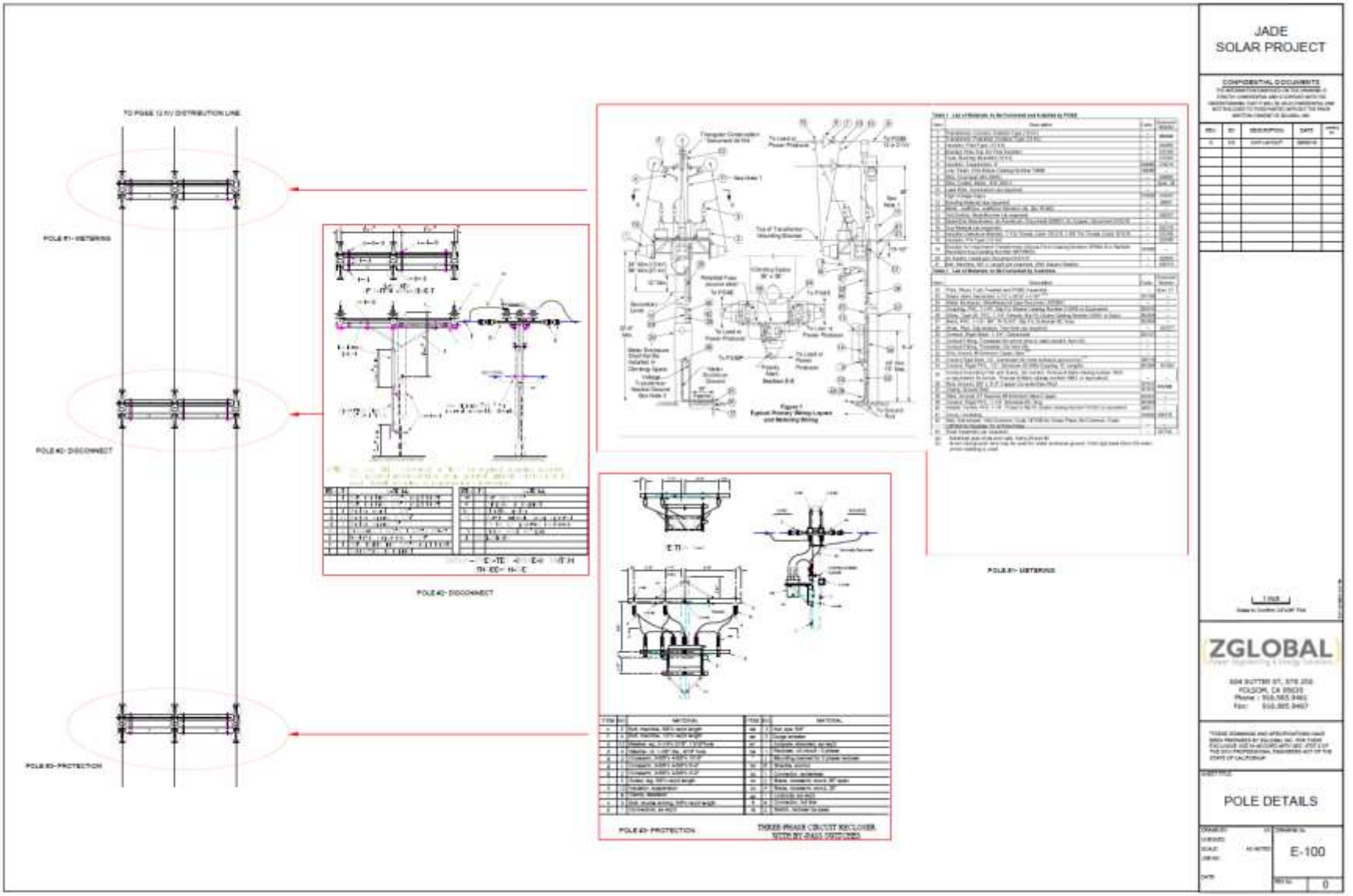

Figure 5-13 3-Pole Interconnection Detail

6 CONSTRUCTION

6.1 Construction Process

The proposed solar energy storage facility will be constructed in one continuous build cycle over a period of up to fourteen (14) months. Construction is estimated to begin in Q2 2019. However, the actual start of construction will be determined based on the receipt of all pre-construction permits and approvals and securing financing for the project. Generally, the construction process will include the following steps:

- Conduct required pre-construction surveys and mitigation measures
- Development of construction staging and parking areas to facilitate the arrival of workers and equipment on site
- Fencing of project site
- Site preparation including installation of stormwater management features, grading, and compaction as required
- Installation of posts for the PV racks and equipment pads
- Installation of PV racks, trenching for wiring
- Installation of gen-tie and collection system structures and wiring
- Installation of PV panels and wiring
- Installation of battery storage enclosures
- Completion of Connections
- Commissioning and Testing
- Site Clean-up and demobilization

Construction would generally occur between 7 a.m. and 6 p.m. on a 5-day-per-week, 8-hour-per-day basis. Additional work hours and days may be necessary to make up for unanticipated schedule delays or to perform certain testing and checkout activities. All construction work performed outside of the normal work schedule would be coordinated with the appropriate agencies and conform to the appropriate jurisdictional Noise Ordinance.

6.2 Site Preparation

Site preparation will involve preparation of land areas for the installation of arrays, related infrastructure, project access driveways, temporary construction staging areas, and Stormwater management improvements. These activities may include:

- Rough grading, if required, for preparation of one of more equipment pads up to 400 square feet in aggregate
- Cut existing vegetation no more than 2 inches above existing grade, including minimal grubbing and clearing of shrubs as required
- Construct drainage routes for storm water management using the existing drainage and natural slope of the project site, if required

Prior to the initial construction mobilization, preconstruction surveys would be performed and then sediment and erosion controls will be installed in accordance with the approved Stormwater Pollution Prevention Plan

(SWPPP). Stabilized construction entrance/exit(s) will be installed at the driveway(s) to reduce tracking of sediment onto adjacent public roadways.

Any existing trees or vegetation removed from the site would be taken to a composting facility or chipped and used as mulch. Any existing debris removed from the site would be disposed of appropriately. Any cut and fill resulting from any grading would be contained within the project site. No removal of soil from the project site is contemplated.

The project will adhere to the applicable rules of the local Air Pollution Control District (ACPD) or Air Quality Management District (AQMD) and will develop and implement a plan to minimize fugitive dust emissions. During construction, roads and work areas will be watered and/or dust palliatives will be applied as need to suppress dust. When earth moving activities are completed in an area, all exposed soil would be coated with a permeable dust suppressant and/or watered as appropriate. The roadways within and around the solar field will be native soil and would also be treated with a dust suppressant and/or watered as appropriate. Chipped mulch created as a result of selective vegetation removal may be spread on site for this purpose, as appropriate and/or applicable.

Onsite temporary disturbances would be primarily associated with construction activities in equipment staging and laydown areas, along temporary access roads, or within graded or disturbed areas, which would be restored following completion of construction. No temporary offsite disturbances are contemplated.

Onsite permanent disturbances would be associated with the operational facilities and would include: racking supports, access roads, equipment pad, fencing, and data monitoring equipment that would remain in place for the life of the project. No permanent offsite disturbances are contemplated.

The site would be secured with a chain link fence as described in Section 5.10.1 Fencing. Laydown and staging areas would be located within the portion of the project site where the facility would be built and will be contained within the project footprint.

Trenches would be excavated using ditch digging equipment or backhoes to install the underground wiring and conduits that would collect power from the PV modules and deliver it to the inverter(s) located throughout the site, as specified in 5.2.3 Inverters, Transformers, and Associated Equipment.

6.3 Construction Workers, Hours, and Equipment

The construction workers employed for the project would consist of laborers, electricians, supervisory personnel, support personnel, and construction management personnel. The onsite assembly and construction workforce is expected to reach a peak of 30 workers.

Construction work would generally occur during daylight hours, Monday through Friday. Non-daylight work hours may be necessary to make up for schedule deficiencies or complete critical construction activities, including activities that could not be completed during daylight. For instance, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures.

Temporary construction trailers and associated work facilities could be installed during site mobilization. It is expected that the majority of these temporary facilities would be located at an assembly or staging area throughout the construction period.

The PV modules, batteries and other materials for the solar energy storage facility would be manufactured off site and delivered to the project site by truck. Upon their arrival, the materials would be inspected and stored in the temporary staging area as appropriate or required.

Construction materials such as concrete, conduit, wire and cable, fuels, reinforcing steel, small tools, and consumables would be delivered to the site by truck. The construction activities described may overlap with one another, with grading and access road construction preceding installation of the support structures and associated equipment within each array area.

Construction may require the use of tractor-mounted vibratory hammers, graders, compactors, trenchers, backhoes, forklifts, pile drivers, skid steers, front-end loaders, material hauling trucks, and a 5,000-gallon water truck. Other details regarding construction are provided below.

Table 6-1 summarizes the project's proposed construction activities, typical equipment, and the approximate/average number of workers associated with each activity. As previously noted, some of the construction activities described below may overlap.

Table 6-1 Construction Activities

Project Construction Activities

Activity	Typical Equipment could include:	Number of Workers
Site Work	One tracked dozer Two motor graders Two sheep's-foot compactors Two smooth-drum compactors Two backhoes/excavators Two water trucks One-wheel loader Two rear/belly dump trucks	15 (Average)
Mechanical and electrical work	One bobcat loader One backhoe excavator One forklift Two pile driving machines Two vibratory hammers One backhoe/front-end loader One gradall One trencher Two pickup trucks (1 ton)	30 (average)
Commissioning	Two pickup trucks (1 ton)	5 (average)
Closeout/restoration	1 motor grader Two pickup trucks (1 ton)	8 (average)

Note: Some activities would occur concurrently.

6.4 Electrical Supply

Temporary power for construction is expected to be provided by mobile diesel-driven generator sets and/or a temporary electrical service connection from the local power provider.

6.5 Water Usage

Water for construction would be hauled in by truck. It is conservatively estimated that up to 1 acre-feet of water would be required during the construction period to support project site roadway compaction, dust control, panel washing, and sanitary use.

6.6 Wastewater

Wastewater generated during construction would consist primarily of sanitary waste, which would be managed through the use of portable toilets. Other wastewater generated during construction may include storm water runoff and equipment wash water. Construction would adhere to a storm water pollution prevention plan (SWPPP), which would incorporate BMPs for runoff and erosion control. Site-specific BMPs would be designed by the contractor in compliance with the regulations and permit conditions of the storm water pollution prevention plan. The project would also comply with applicable post-construction water quality requirements adopted by the Regional Water Quality Control Board (RWQCB) local region.

6.7 Solid and Non-Hazardous Waste

A small amount of solid waste would be generated by construction activities at the site. Such waste may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation wastes. These wastes would be segregated, where practical, for recycling. Non-recyclable wastes would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Vegetation wastes generated by site clearing and grubbing would be chipped/mulched and spread on site or hauled off site to an appropriate "green" waste facility.

6.8 Hazardous Materials

The hazardous materials used for construction would be typical of most construction projects of this type. Materials would include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, and welding materials/supplies. If required by Madera County, a hazardous materials business plan would be provided to the Madera County Environmental Health Services Department/Hazardous Materials Section, which would include a complete list of all materials that would be used on site and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During project construction, material safety data sheets for all applicable materials present at the site would be made readily available to onsite personnel.

6.9 Hazardous Waste

Small quantities of hazardous wastes would most likely be generated over the course of construction. These wastes may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to identify and handle hazardous materials

properly. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped off site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler.

7 Operations and Maintenance

Once placed into service, the facility would operate year-round during daylight hours when there is sufficient sunlight to begin operation of the solar field.

Site monitoring would be conducted from an offsite location. An estimated two or three offsite employees would be reserved for maintenance and would be dispatched to the site for routine scheduled maintenance and on an as-needed basis for unscheduled maintenance. Project maintenance performed on the site would consist of equipment inspection and replacement and would occur primarily during daylight hours. Maintenance schedules would be developed to include periodic maintenance and equipment replacement in accordance with manufacturer recommendations. Module washing is anticipated to require two or three workers approximately one to four times per year, or as needed, dependent upon site specific conditions.

Vehicles for operation and maintenance would typically include trucks such as pickups or flatbeds, as well as water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the site infrequently for equipment repair and/or replacement.

7.1 Roads, Fencing, and Security

To ensure the safety of the public and the facility, the site would be secured with a chain link fence as described in Section 5.10.1 Fencing. Access to the site would be controlled and gates would be installed to provide the required access to the site, with the potential for additional security appurtenances as described in Section 5.10.2 Site Security.

7.2 Electrical Supply

Power for plant auxiliaries would be provided by the project's electrical generation or supplied by the local power provider.

7.3 Lighting

Project lighting may be installed for ongoing maintenance and security purposes as described in Section 5.10.3 Site Lighting. Project lighting, triggered by motion sensors, may be installed at ingress and egress gates and at strategic locations around the facility. All project lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. Project lighting would conform to National Electric Safety Code (NESC) requirements and all applicable outdoor lighting codes per the local ordinance.

7.4 Water Usage

Water required for operation of the project would consist primarily of water consumed by panel washing and small quantities used for dust mitigation. All water required for operation of the project would be provided by water trucks. The 5,000-gallon water trucks would be supplied by the project proponent and trucked in from offsite sources. The amount of water needed for the two to four washings per year is estimated to be approximately 0.04 to 0.71 acre-feet per year, or approximately 11,600 to 23,200 gallons per year. No soaps would be used in the cleaning process.

7.5 Wastewater

During operation, the site would be unmanned. There would be no sanitary facilities available for workers at the site, including sinks for washing or toilets.

7.6 Storm water

Areas of the solar energy storage facility where small amounts of contaminants could be released, such as the paved areas surrounding the enclosures, would be constructed in compliance with storm water quality management measures (i.e., basins and infiltration areas, where required) designed to meet State and local storm water management plan requirements. These paved areas would be maintained, and any vehicle leaks or spills would be periodically cleaned with absorbent materials to minimize the potential for contamination. All applicable local RWQCB discharge requirements and Madera County's water quality regulations would be adhered to in the development and maintenance of the project site.

7.7 Fire Protection

7.7.1 Energy Storage System

Proper battery storage and transport strategies will help manage the risks. Air conditioning equipment (not pictured) will be used to maintain safe ambient operating temperature conditions. An effective method for Li-ion battery storage is to use a fire containment and suppression system with the battery compartments of the enclosures that would deal with a battery fire event. Such systems contain the fire event and encourage suppression through cooling, isolation, and containment (SCIC). It is important when using this approach to ensure batteries are housed in environments that feature fire suppression systems that extinguish through cooling. Suppressing a lithium ion (secondary) battery is best accomplished by cooling the burning material (Butler 2013).

The project would use a fire protection system with the SCIC strategy for fire containment. To that end, the battery compartments within the enclosures would include a gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid or equivalent) and an automatic fire extinguishing system with sound and light alarms. The system would be designed in accordance with National Fire Protection Association (NFPA) safety standards including an automatic shut-down system for fans that keep the container sealed when the fire extinguishing system is activated. The fire suppressant agent is released by a releasing panel that uses an aspirating smoke detection system and has a manual release. The aspirating smoke detection system provides for four levels of signaling before release of the fire suppressant agent. A disable switch is provided for maintenance personnel to allow for work on the battery compartment of the enclosure without accidental discharge.

7.7.2 Solar PV System

The PV modules and ancillary equipment represent a negligible increase in fire potential. Fire protection measures would include the provision of portable carbon dioxide (CO_2) fire extinguishers mounted outside the electrical enclosures. Additionally, fire protection for the solar array and the gen-tie line would be provided through vegetation management programs. Vegetation may be controlled with periodic grazing, using farm animals to ensure that the vegetation would not grow to a point where it would shade the modules or pose a fire hazard. If grazing is not a feasible option, vegetation would be periodically removed manually and/or treated

with a combination of pre- and post-emergent herbicides containing an adherent additive. Within the solar arrays, vegetation would be controlled by mechanical methods to minimize fire risk.

7.8 Solid and Nonhazardous Waste

The project would produce a small amount of solid waste from operational activities. During operations, refuse could be generated by workers while on site. This would include rags, empty containers, and other miscellaneous types of nonhazardous solid wastes. All solid waste would be removed by workers when they leave the site.

7.9 Hazardous Materials

Limited quantities of hazardous materials would be used and stored on site for operation and maintenance. These materials would include oils, lubricants, paints, solvents, degreasers and other cleaners, and transformer mineral oil.

Each of the medium-voltage transformers would contain up to 400 gallons of dielectric fluid (mineral oil) and be located on concrete pads. In accordance with State and Federal regulations, the project would have a comprehensive spill prevention, control, and countermeasure plan (SPCC), as applicable in accordance with State and Federal regulations. Any storm water or drained fluid would be inspected for sheen prior to disposal. If sheen is observed, the storm water or drained fluid would be removed by vacuum truck and transported to an appropriate disposal site. If no sheen or contaminants are detected, the storm water would be drained on site.

Any hazardous materials would be stored in appropriate storage locations and containers. Flammable materials, such as paints and solvents, would be stored in nonflammable material storage cabinets with built-in containment sumps. A Hazardous Materials Management Program (HMMP) would be developed for project operations prior to turnover of the site from construction to operations.

At a minimum, the HMMP would include procedures for:

- Hazardous materials handling, use, and storage;
- Emergency response;
- Spill control and prevention;
- Employee training; and
- Recordkeeping and reporting.

7.10 Hazardous Waste

Hazardous waste generated during facility operation, if any, would be managed in accordance with applicable laws and regulations. Workers would be trained to properly identify and handle all hazardous materials. Hazardous wastes would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous wastes shipped off site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler.

7.11 Health and Safety

All employees and contractors would be required to adhere to the appropriate health and safety plans and emergency response plans. All construction and operation contractors would be trained and required to operate

under a health and safety program that meets industry and Occupational Safety and Health Administration (OSHA) standards.

7.12 Maintenance Overview

Site maintenance is anticipated to occur approximately 2 to 4 times per year for a period of 3 to 5 days per maintenance period. Site maintenance may include any or all of the following activities per visit; 1) module washing; 2) Site preventative maintenance; 3) vegetation control.

7.12.1 Site Preventative Maintenance

Preventative maintenance is anticipated to entail 2 to 3 employees visiting the site to perform routine maintenance on the mechanical and electrical equipment to ensure optimal performance. This can include any or all of the following; 1) site walk inspection of all electrical and mechanical components for wear and tear; 2) system electrical testing; 3) inverter inspection and preventative maintenance; and 4) removal of any debris that can restrict airflow within the PV array.

8 DECOMMISSIONING AND RECLAMATION

At the end of the project's operational term, the project proponent may determine that the project should be decommissioned and deconstructed, or it may seek an extension of the CUP. Because the solar energy storage system's supporting equipment would sit on the surface of the land, when they are removed after the project's lifetime the land would be largely unaltered from its natural state. The project proponent would work with Madera County to put an agreement in place that would ensure decommissioning of the project after its productive lifetime. The project would use BMPs to ensure the collection and recycling of PV modules and batteries, and minimize the potential for such materials to be disposed of as municipal waste.

Decommissioning and reclamation may include: 1) packaging PV modules and batteries for removal and recycling or otherwise ensuring removal; 2) removing ancillary facilities; and 3) reclamation, re-vegetation, restoration, and soil stabilization to return the site to its native conditions; or 4) return to agricultural production as dictated by any agreements that may be put into place between the applicant and the property owner(s). The PV modules are expected to still have useful life and would still be capable of producing electricity; these would be marketed for resale. Material and equipment such as such as the racking structures and mechanical assemblies will be recycled. The inverters and transformer(s) will also be reused or recycled. The equipment pads made of concrete will be crushed and recycled. Any underground conduit and wire will be removed by uncovering the trenches and backfilling when done. The remaining balance of material and/or waste generated from the project would either be recycled as appropriate for the type of material or disposed of at the local transfer station and/or landfill facility.

9 REPRESENTATIVE SITE PHOTOGRAPHS

Please reference the *Biological Resources Assessment Report* and the *Cultural Resources Inventory Report* prepared by ECORP in November 2017 for representative site photos. Electronic files can be provided upon request.

Exhibit I

DRAFT

Biological Resources Assessment

Z Global Bodega Solar

Madera, California

Prepared for:

Z Global Inc.

November 2017

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, construction supervision, and monitoring and compliance reporting.

Citation: ECORP Consulting, Inc. 2017. Biological Resources Assessment for the Z Global Bodega Solar Project, Madera, California. Prepared for Z Global Inc. Rocklin, California. November 2017

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LIST OF ACRONYMS AND ABBREVIATIONS

BA	Biological Assessment
BCC	Birds of Conservation Concern
BO	Biological Opinion
BRA	biological resources assessment

LIST OF ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CTS	California tiger salamander
CWA	Clean Water Act's
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Z Global Bodega Solar Project
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SSC	Species of Special Concern
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

At the request of Z Global Inc., ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the Z Global Bodega Solar Project (Project) located in Madera County.

1.1 Project Area Location

The ±22.14-acre Project Area is generally located southeast of Raymond Road and northeast of Road 31 in an unincorporated part of Madera County, approximately seven miles east of the City of Madera in Madera County, California. The Project Area corresponds to a portion of Section 14, Township 10 South, and Range 18 East (Mount Diablo Base and Meridian) of the "Daulton, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1962, rev. 1981) (Figure 1. *Project Area Location and Vicinity*). The approximate center of the Project Area is located at latitude 37.05624˚ and longitude -119.980521˚ within the Fresno River Watershed (Hydrologic Unit Code #18040007, Natural Resources Conservation Service [NRCS], USGS, and U.S. Environmental Protection Agency [USEPA] 2016).

1.2 Project Description

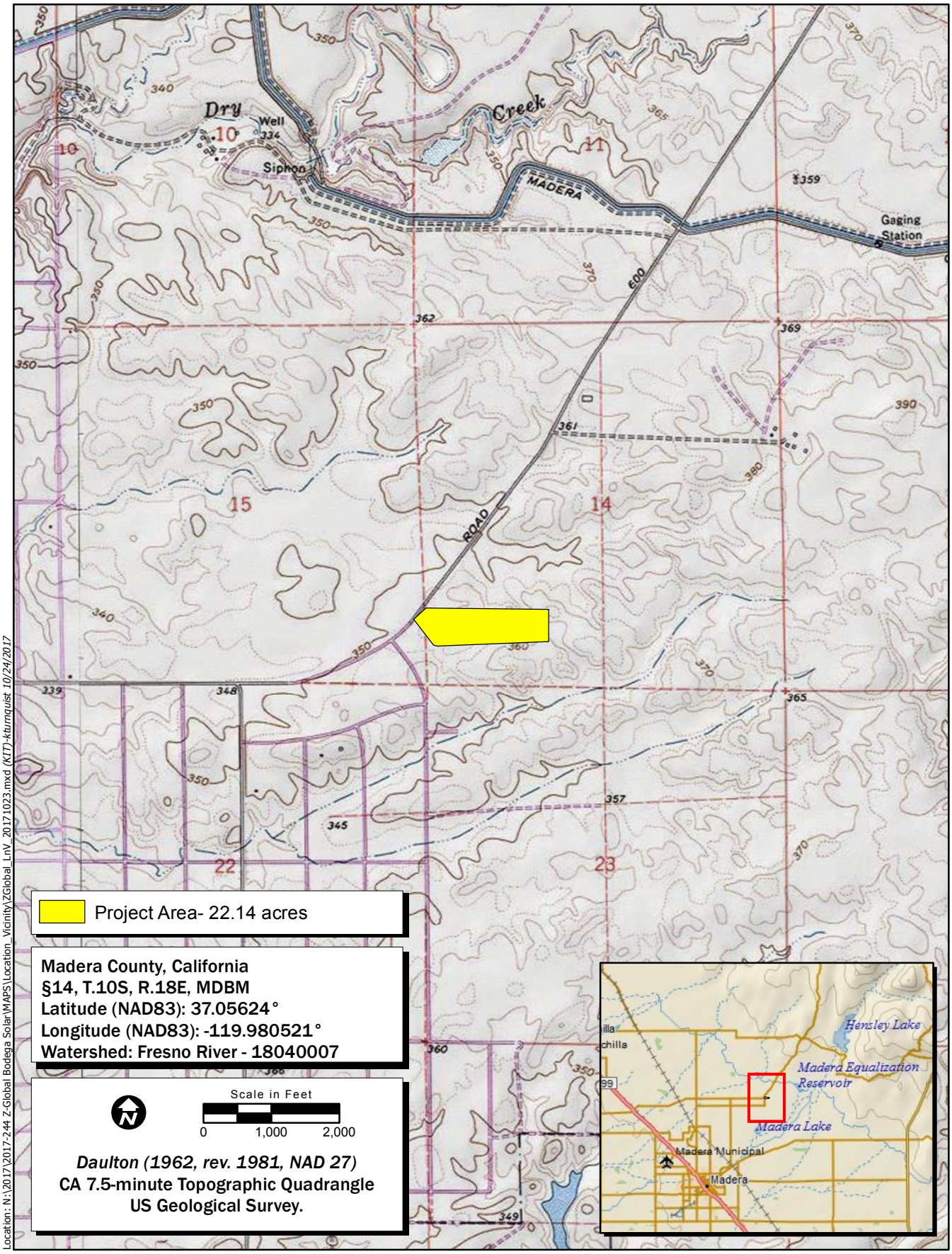
The Project consists of the installation of Solar Photovoltaic arrays on existing farmland in Madera County, California.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Project Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols, and the conclusions and recommendations presented in this report are based upon a literature review, database queries, and limited site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes);



Location: N:\2017\2017-244 Z-Global Bodega Solar\MAPS\Location_Vicinity\ZGlobal_LnV_20171023.mxd (KIT)-kturnquist 10/24/2017

Map Date: 10/24/2017

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ENVIRONMENTAL CONSULTANTS

Figure 1. Project Area Location and Vicinity

2017-244 Z-Global Bodega Solar

- are plants considered by the California Native Plant Society (CNPS) to be "*rare, threatened, or endangered in California*" [California Rare Plant Rank (CRPR) 1 and 2];
- are plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4); or
- are plants listed as rare under the California Native Plant Protection Act (NPPA, California Fish and Game Code, § 1900 et seq.).

Only species that fall into one of the above-listed groups were considered for this assessment. Birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS), without other special status, were not included in this analysis. Other species without special status that are sometimes found in database or literature searches were not included within this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the federal ESA prohibits the taking of listed wildlife, where take is defined as "*harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct*" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on nonfederal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of federal ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a Biological Opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of federal ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

Section 7

Section 7 of the federal ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of critical habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a Biological Assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a

listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit under Section 10 of the federal ESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of the federal ESA as

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the federal ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and

2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; or
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were

excluded from the Critical Habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific Critical Habitat designation would be afforded protection under Section 7(a)(2) of the federal ESA.

Essential Fish Habitat

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), federal agencies are required to consult with NMFS for activities that may affect Essential Fish Habitat (EFH). EFH are the waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity, and include several important components: adequate substrate; water quality and quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and habitat connectivity (Pacific Fishery Management Council 2000).

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in §§ 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.1.4 Federal Clean Water Act

The federal Clean Water Act's (CWA's) purpose is to "*restore and maintain the chemical, physical, and biological integrity of the nation's waters*." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the United States (U.S.) without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "*that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do*

support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The USEPA also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "*hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill*." The California ESA allows for take incidental to otherwise lawful development projects. State-led agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code, § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act

The NPPA of 1977 was created with the intent to "pre*serve, protect and enhance rare and endangered plants in this State*." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

California Streambed Alteration Notification/Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Agreement (SAA) be submitted to CDFW for "*any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake*." CDFW reviews the proposed actions and, if necessary, submits proposed for measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed upon by CDFW and the Applicant is the SAA. Often, projects that require an SAA also require a permit from USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA overlap.

2.2.2 Species of Special Concern

The SSC are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.3 California Plant Ranks

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2017), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The California Rare Plant Ranks are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of one through three, with 1 being the most threatened and three being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 - 80 percent occurrences threatened/ moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank, and differences in Threat Ranks do not constitute additional or different protection (CNPS 2017). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.4 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction

Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "*discharging waste, or proposing to discharge waste, with any region that could affect the water of the state*" (Water Code 13260(a)). Waters of the State are defined as "*any surface water or groundwater, including saline waters, within the boundaries of the state*" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.5 California Environmental Quality Act

In accordance with the CEQA Guidelines' § 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in federal and California ESAs and §§ 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant, and are particularly relevant to species with special status. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant and require lead agencies to prepare an Environmental Impact Report to thoroughly analyze and evaluate the impacts. Assessment of "impact significance" to populations of nonlisted species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;

- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state HCPs.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.6 Local Plans and Ordinances

Madera County General Plan

Section 5: Agricultural and Natural Resources of the *Madera County General Plan Policy Document* includes several goals and policies related to the protection of forest resources, water resources, wetland and riparian areas, fish and wildlife habitat, and vegetation. Additionally, Section 5 includes several goals and policies related to open space for the preservation of natural resources (Madera County 1995).

The goals and policies emphasizes minimization of construction related impacts to flood waters, flowing rivers, streams, creeks, or reservoir waters and requires implementation of best management policies to prevent impacts to waters resources. The goals and policies also include compliance wetland policies of the USACE, USFWS, and CDFW; mitigation for loss of regulated and unregulated wetlands; implementation of riparian protection zones; conservation of upland areas adjacent to wetlands; preservation and enhancement of native riparian habitat at a ratio of 3:1; protection of critical nesting foraging areas; and preservation of habitat for rare, threatened, endangered, and/or other special-status species (Madera County 1995).

3.0 METHODS

3.1 Literature Review

Prior to conducting the field portion of the assessment, the following species lists were queried to determine the special-status species that had been documented within or in the vicinity of the Project Area. Results of the database searches are included as Attachment A:

- CDFW CNDDB for the "Daulton, California" and surrounding eight 7.5-minute USGS quadrangles (CDFW 2017);

- USFWS IPaC Resource Report List for the Project Area (USFWS 2017); and
- CNPS electronic *Inventory of Rare and Endangered Plants of California* was queried for the "Daulton, California" and surrounding eight 7.5-minute USGS quadrangles (CNPS 2017).

Additional background information was reviewed regarding the documented or potential occurrence of special-status species within or near the Project Area from the following sources:

- The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004 (CDFG 2005);
- California Bird Species of Special Concern (Shuford and Gardali 2008);
- Amphibian and Reptile Species of Special Concern in California (Thompson et al. 2016);
- Mammalian Species of Special Concern in California (Williams 1986);
- California's Wildlife, Volumes I-III (Zeiner, et al. 1988, 1990a, 1990b); and
- A Guide to Wildlife Habitats of California (Mayer and Laudenslayer Jr., eds. 1988).

3.2 Site Reconnaissance

ECORP senior biologist Keith Kwan conducted the site assessment on October 20, 2017. The Project Area was systematically surveyed on foot using a Trimble GPS unit with sub-meter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the site with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring within the Project Area were characterized and the following biological resource information was collected:

- Potential Waters of the U.S.;
- Plant and animal species directly observed;
- Plant communities;
- Animal evidence (e.g., scat, tracks);
- Burrows and any other special habitat features; and
- Representative site photographs (Attachment B).

In addition, soil types were identified using the NRCS Web Soil Survey (NRCS 2017a).

3.3 Special-Status Species Considered for the Project

Based on species occurrence information from the CNDDB, the literature review, and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Project Area was generated (Table 1 in Section 4.6). Only special-status species as defined in Section 1.3 were included in this analysis. Each of these species' potential to occur within the Project Area was assessed based on the following criteria:

- **Present** - Species was observed during the site visits or is known to occur within the Project Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur in the vicinity based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur in the vicinity based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Project Area is located in an area of rural Madera County with heavy agricultural uses. The site is surrounded by orchard on all sides except for the area to the southwest of the site, which includes a gas station/mini mart and a rural residential area. Topography within the Project Area is relatively flat, with elevations ranging from approximately 350 to 360 feet above mean sea level. The Project Area is currently a fallow fig (*Ficus carica*) orchard with ruderal vegetation along the roads, detention basin, and in the westernmost portion of the site. A cell phone tower and associated control building is located on the southwestern portion of the site with an associated gravel road that travels west-east through the site. A small detention basin to temporarily hold irrigation water is located in the northeastern portion of the site (Figure 2. *Project Area*).

4.2 Vegetation Communities and Land Cover Types

Two vegetation communities and one land cover type were documented within the Project Area. The vegetation communities are fallow fig orchard and ruderal, and the land cover type is developed. Descriptions of each are provided below.

4.2.1 Fallow Fig Orchard

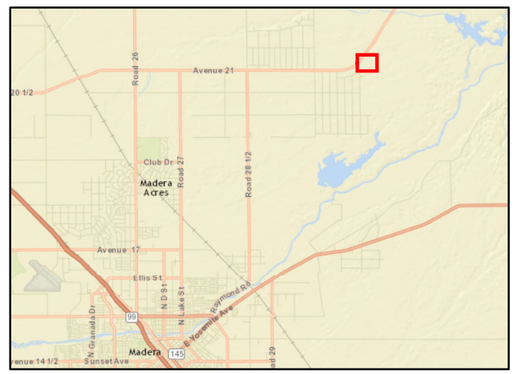
The Project Area consists almost entirely of a former fig orchard. The fig trees were recently removed, leaving the field fallow. Several large piles of mulched fig trees are still onsite. The understory vegetation remaining in the fallow fig orchard is ruderal, described below. One detention basin, which was used for irrigation purposes is located at the northeast corner of the Project Area and is no longer in use.

Figure 2. Project Area

Map Features

Project Area- 22.14 acres [1]

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



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2017-244 Z-Global - Bodega Solar

Scale in Feet
0 200

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Photo Source: 2016, NAIP

[1] *(KMZ Provided by Z-Global)*

Map Date: 10/26/2017

Location: N:\2017\2017-244 Z-Global Bodega Solar\MAPS\Field_Maps\2017-10-19_Bio_Field_Visit\ZGBodega_Project_Area_20171026.mxd (KIT) kturnquist 10/26/2017

4.2.2 Ruderal

Ruderal vegetation occurs along roadside edges, along the edges of the detention basin, and also characterizes what remains of the understory vegetation in the fallow fig orchard. Ruderal vegetation is dominated by nonnative grasses and forbs including wild oat (*Avena fatua*), prickly lettuce (*Lactuca serriola*), soft brome (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), and red brome (*Bromus madritensis*).

4.2.3 Developed

The developed areas within the Project Area includes a gravel road that runs west-east throughout the Project Area and a cell phone tower and associated enclosure in the central western portion of the site. This road extends from the cell phone tower to a rural farm road that runs north to south between adjacent orchards.

4.3 Wildlife

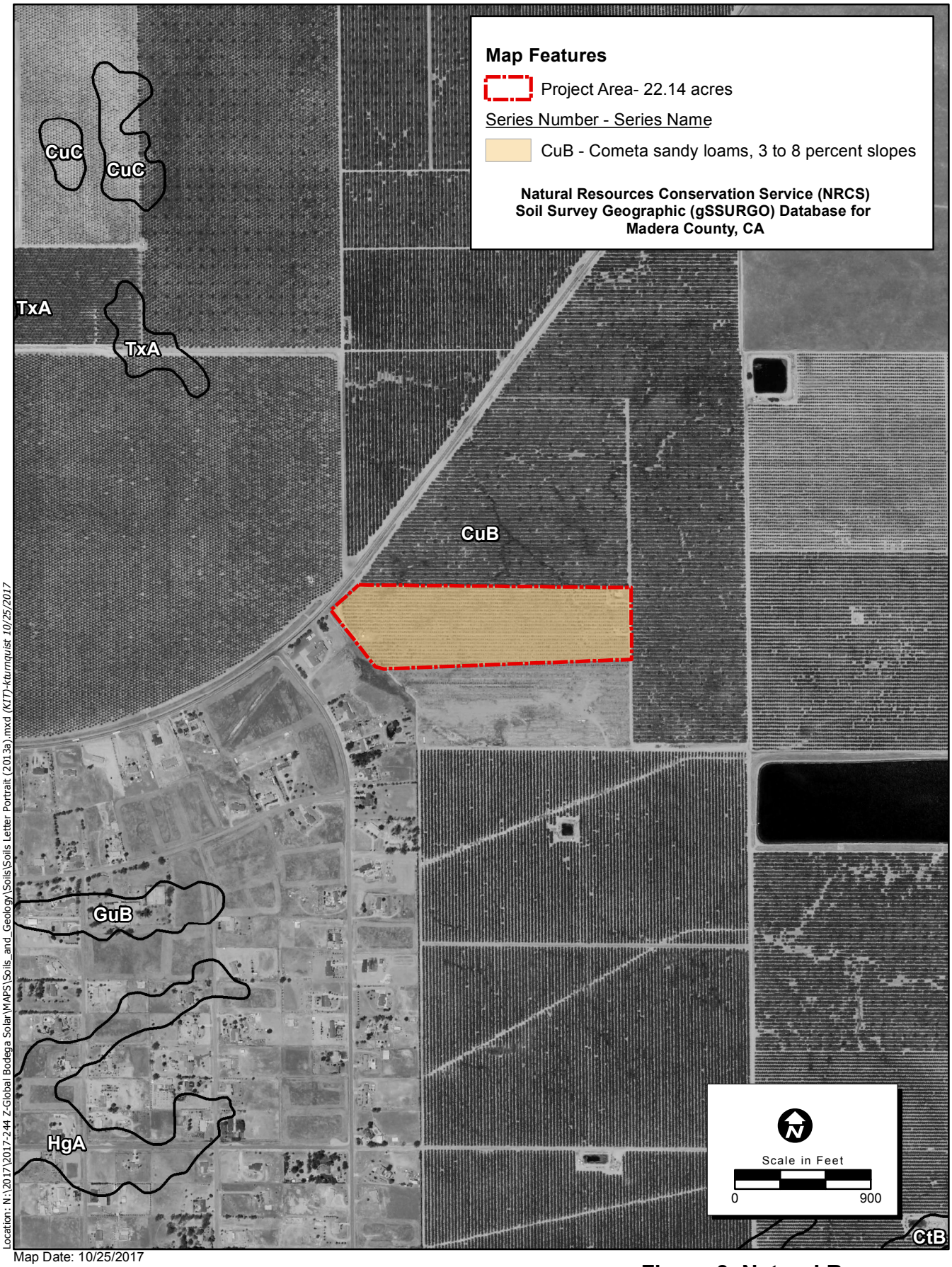
Wildlife species observed within the Project Area during the October 20, 2017 site visit included American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), California scrub-jay (*Aphelocoma californica*), American pipit (*Anthus rubescens*), yellow-rumped warbler (Audubon's) (*Setophaga coronata*), house finch (*Haemorhous mexicanus*), and western meadowlark (*Sturnella neglecta*).

4.4 Soils

According to the Web Soil Survey (NRCS 2017a), one soil unit, or type, has been mapped within the Project Area (Figure 3. *Natural Resource Conservation Service Soil Types*):

- CuB – Cometa sandy loams, 3 to 8 percent slopes

Cometa sandy loams, 3 to 8 percent slopes (CuB) is considered hydric when occurring in depressions (NRCS 2017b).



Location: N:\2017\2017-244 Z-Global Bodega Solar\MAPS\Soils_and_Geology\Soils\Soils Letter Portrait (2013a).mxd (KT)-kturnquist 10/25/2017

Map Date: 10/25/2017
Photo Source: NAIP 2016

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Figure 3. Natural Resources Conservation Service Soil Types

2017-244 ZGlobal Bodega Solar

4.5 Potential Waters of the U.S.

A preliminary wetland assessment was conducted within the Project Area during the October 20, 2017 site visit. There is a small detention basin at the far northeastern corner of the site. This feature was surveyed during the site visit and found to have no apparent hydrological indicators. No potential wetlands or Waters of the U.S. were identified within the Project Area, however, a formal Waters of the U.S. delineation has not been conducted according to USACE standards.

4.6 Evaluation of Potentially Occurring Special-Status Species

A list of all of the plant and wildlife species identified in the literature search as potentially occurring within the Project Area is provided in Table 1. Included in this table are the listing status for each species, a brief habitat description, and a determination on the potential to occur in the Project Area. Following the table is a brief description of each species with some potential to occur within the Project Area.

Several species and sensitive habitat types came up in the database and literature searches (Attachment A) but are not included in Table 1. These species and habitat types were not included in Table 1 because the species have been formally delisted or are only tracked by the CNDDB and possess no special-status, or because the identified sensitive habitats are not located within the Project Area. They are not discussed further in this report.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Plants						
Vernal pool smallscale *(Atriplex persistens)*	-	-	1B.2	Alkaline vernal pools (33' – 377').	June – October	Absent. There are no vernal pools within the Project Area.
Hoover's calycadenia *(Calycadenia hooveri)*	-	-	1B.3	Rocky soils in cismontane woodland and valley and foothill grassland (213' – 984').	July – September	Absent. Suitable habitat for this species is not present within the Project Area.
Succulent owl's clover *(Castilleja campestris* ssp. *succulenta)*	FT	CE	1B.2	Vernal pools that are often acidic (164' – 2,461').	April – May	Absent. There are no vernal pools within the Project Area.
Beaked clarkia *(Clarkia rostrata)*	-	-	1B.3	Cismontane woodland and valley or foothill grassland (197' – 1,640').	April – May	Low Potential to Occur. The Project Area provides marginally suitable habitat for this species.
Sierra clarkia *(Clarkia virgata)*	-	-	4.3	Cismontane woodland, and lower montane coniferous forest (1,312' - 5,299).	May – August	Absent. Suitable habitat for this species is not present within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Hoover's cryptantha *(Cryptantha hooveri)*	-	-	1A	Inland dunes, sandy substrates in valley and foothill grassland (30' – 492').	April – May	Low Potential to Occur. The Project Area provides marginally suitable habitat for this species.
Ewan's larkspur *(Delphinium hansenii* ssp. *ewanianum)*	-	-	4.2	Rocky soils in cismontane woodland, and valley and foothill grassland (196' – 1,969').	March – May	Absent. Suitable habitat for this species is not present within the Project Area.
Spiny-sepaled button-celery *(Eryngium spinosepalum)*	-	-	1B.2	Vernal pools and valley and foothill grassland (262' – 3,199').	April – June	Low Potential to Occur. The Project Area provides marginally suitable habitat for this species.
Madera leptosiphon (*Limosella serrulatus*)	-	-	1B.2	Cismontane woodland, and lower montane coniferous forest (984' – 4,265').	April – May	Absent. Suitable habitat for this species is not present within the Project Area.
Orange lupine (*Lupinus citrinus* var. *citrinus*)	-	-	1B.2	Granitic substrates in chaparral, cismontane woodland, and lower montane coniferous forest (1,246' – 5,577').	April – July	Absent. Suitable habitat for this species is not present within the Project Area.
Shining navarretia *(Navarretia nigelliformis* ssp. *radians)*	-	-	1B.2	Cismontane woodland, valley and foothill grassland, and vernal pools, sometimes with clay substrates, (213' – 3,281').	April – July	Low Potential to Occur. The Project Area provides marginally suitable habitat for this species.
San Joaquin Valley Orcutt grass *(Orcuttia inaequalis)*	FT	CE	1B.1	Vernal pools (33' – 2,477').	April – September	Absent. There are no vernal pools within the Project Area.
Hairy Orcutt grass *(Orcuttia pilosa)*	FE	CE	1B.1	Vernal pools (151' – 656').	May – September	Absent. There are no vernal pools within the Project Area.
Greene's tuctoria (*Tuctoria greenei*)	FE	CR	1B.1	Vernal pools (98' – 3,510').	May – July	Absent. There are no vernal pools within the Project Area.
Invertebrates						
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	-	-	Vernal pools/wetlands.	November – April	Absent. There are no vernal pools or wetlands within the Project Area.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any Season	Absent. There are elderberry shrubs within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November – April	Absent. There are no vernal pools or wetlands within the Project Area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Vernal pools/wetlands.	November – April	Absent. There are no vernal pools or wetlands within the Project Area.
Fish						
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent. There is no suitable aquatic habitat for this species present within the Project Area.
Hardhead (*Mylopharodon conocephalus*)	-	-	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River.	N/A	Absent. There is no suitable aquatic habitat for this species present within the Project Area.
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss*)	FT	-	-	Undammed rivers, streams, creeks.	N/A	Absent. There is no suitable aquatic habitat for this species present within the Project Area.
Amphibians						
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1 – November 1	Absent. The Project Area is outside of the geographical range of this species and suitable habitat for this species is not present within the Project Area.
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT	CT	SSC	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	March – May	Low Potential to Occur. The Project Area does not provide suitable breeding or upland aestivation habitat for this species; however, the species may occasionally disperse through the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Western spadefoot *(Spea hammondii)*	-	-	SSC	A California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Low Potential to Occur. The Project Area does not provide suitable breeding or upland aestivation habitat for this species; however, the species may occasionally disperse through the Project Area.
Reptiles						
Blainville's ("Coast") horned lizard (*Phrynosoma blainvillii*)	-	-	SSC	Formerly a wide-spread horned lizard found in a wide variety of habitats, often in lower elevation areas with sandy washes and scattered low bushes. Also occurs in Sierra Nevada foothills. Requires open areas for basking, but with bushes or grass clumps for cover, patches of loamy soil or sand for burrowing and an abundance of ants (Stebbins and McGinnis 2012).	Apr-Oct	Low Potential to Occur. The Project Area provides marginally suitable habitat for this species.
Blunt-nosed leopard lizard *(Gambelia sila)*	FE	CE	FP	Occurs in sparsely vegetated alkali scrub habitats in the southern San Joaquin Valley. Uses mammal burrows, shrubs and other structures for shade.	April - July	Absent. The Project Area is outside of the geographical range of this species and suitable habitat for this species is not present within the Project Area.
California glossy snake *(Arizona elegans occidentalis)*	-	-	SSC	Occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California. Inhabits arid scrub, rocky washes, grasslands, and chaparral (Stebbins and McGinnis 2012).	N/A	Absent. The Project Area is outside of the geographical range of this species and suitable habitat for this species is not present within the Project Area.
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April – October	Absent. There is no suitable aquatic habitat for this species present within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Northern western pond turtle (*Actinemys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	Any Season	Absent. The detention basin on site does not contain water year round; therefore there is no suitable aquatic habitat for this species present within the Project Area.
San Joaquin coachwhip *(Masticophis flagellum ruddocki)*	-	-	SSC	Occurs in open, dry, usually flat habitats in valley grassland and saltbush scrub with little to no shrub cover in the San Joaquin Valley. A dietary generalist.	March-October	Absent. Suitable habitat for this species is not present within the Project Area.
Birds						
Bald eagle (*Haliaeetus leucocephalus*)	DL	CE	FP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g. rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent. Suitable habitat for this species is not present within the Project Area.
Burrowing owl *(Athene cunicularia)*	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g. prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February – August	Low Potential to Occur. No burrows were observed during the site visit, however the Project Area provides marginally suitable habitat for this species.
California horned lark (*Eremophila alpestris actia*)	-	-	WL	San Joaquin Valley, coast range from Sonoma County south to Baja California; grassland, agricultural.	March – July	Low Potential to Occur. The Project area provides marginally suitable habitat for this species.
Double-crested cormorant (nesting colony) *(Phalacrocorax auritus)*	-	-	WL	Nests near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines and typically forages in shallow water. Non-nesters are found in many coastal and inland waters.	April – August	Absent. Suitable habitat for this species is not present within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Golden eagle (*Aquila chrysaetos*)	-	-	BCC, FP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g. windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter.	Nest (February-August); winter CV (October-February)	Absent. Suitable habitat for this species is not present within the Project Area.
Swainson's hawk (*Buteo swainsoni*)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures.	March – August	Low Potential to Occur. The Project Area provides marginally foraging habitat for this species.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March – July	Absent. Suitable habitat for this species is not present within the Project Area.
Tricolored blackbird (*Agelaius tricolor*)	-	CC	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta Cos south to San Bernardino, Riverside and San Diego Counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen Counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent. Suitable habitat for this species is not present within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernadine and Riverside Co.), Amargosa River and Owens Valley (Inyo Co.), Santa Clara River (Los Angeles Co.), Mojave River and Colorado River (San Bernardino Co.). Nests in riparian woodland. Winters in South America.	June 15-August 15	Absent. Suitable habitat for this species is not present within the Project Area.
Mammals						
American badger *(Taxidea taxus)*	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Absent. Suitable habitat for this species is not present within the Project Area.
Fresno kangaroo rat *(Dipodomys nitratoides exilis)*	FE	CE	-	Elevated grassy patches on alkali plains or in grassy terrain with scattered alkali patches. Friable soils for burrow digging and annual and native forbs and grasses for foraging are necessary habitat components. Distribution is limited to the flat San Joaquin Valley Floor from Merced County to the northern border of Kings County (USFWS 2010).	Any season	Absent. The Project Area is outside of the geographical range of this species and suitable habitat for this species is not present within the Project Area.
Pallid bat *(Antrozous pallidus)*	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g. basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group [WBWG] 2017).	April – September	Absent. Suitable habitat for this species is not present within the Project Area.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description[1]	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other Status			
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE	CT	-	Grasslands, sagebrush scrub.	April 15 – July 15, September 1 – December 1	Low Potential to Occur. The Project Area does not provide suitable habitat for this species; however, the species may disperse through the Project Area.
Western mastiff bat (*Eumops perotis californicus*)	-	-	SSC	Primarily a cliff-dwelling species, found in similar crevices in large boulders and buildings (WBWG 2017).	April-September	Absent. Suitable habitat for this species is not present within the Project Area.

Status Codes[1]:

[1] Unless otherwise noted, all plant habitat descriptions were adapted from information provided by CNPS (CNPS 2017)

ESA Endangered Species Act
CESA California Endangered Species Act
FE Federal ESA listed, Endangered.
FP Fully Protected by CDFW
FT Federal ESA listed, Threatened
BCC USFWS Bird of Conservation Concern
DL Delisted from the ESA
CC Candidate for California ESA listing as Endangered or Threatened
CE California ESA or NPPA listed, Endangered
CR California NPPA listed, Rare
CT California ESA or NPPA listed, Threatened
NPPA California Native Plant Protection Act
SSC CDFW Species of Special Concern
WL CDFW Watch List
1A CRPR/Presumed extinct
1B CRPR/Rare or Endangered in California and elsewhere
4 CRPR /Plants of Limited Distribution – A Watch List
0.1 Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and. immediacy of threat)
0.2 Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3 Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

4.6.1 Plants

A total of 14 special-status plant species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, 10 species were considered to be absent from the Project Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining four species that have the potential to occur within the Project Area are presented below.

Beaked Clarkia

Beaked clarkia (*Clarkia rostrata*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.3 species. This species is an herbaceous annual that occurs in cismontane woodland and valley or foothill grassland (CNPS 2017). Beaked clarkia blooms from April through May and it is known to occur at elevations ranging from 197 to 1,640 feet above MSL (CNPS 2017). Beaked

clarkia is endemic to California; the current range of this species includes Merced, Mariposa, Stanislaus, and Tuolumne counties (CNPS 2017).

There are no documented occurrences of beaked clarkia within 10 miles of the Project Area (CDFW 2017). The fallow fig orchard within the Project Area provides marginally suitable habitat for this species. Beaked clarkia has low potential to occur within the Project Area.

Hoover's Cryptantha

Hoover's cryptantha (*Cryptantha hooveri*) is not listed as endangered pursuant to either the federal and California ESAs and is designated as a CRPR 1A species. This species is an herbaceous annual that occurs in inland dunes and sandy valley and foothill grassland (CNPS 2017). Hoover's cryptantha blooms between April and May and is known to occur at elevations ranging from 30 to 492 feet above MSL (CNPS 2017). Hoover's cryptantha is endemic to California; its current range includes Contra Costa, Kern, Madera, and Stanislaus counties; however, it is presumed extirpated in Contra Costa, Madera and Stanislaus counties (CNPS 2017).

There are no documented occurrences of Hoover's cryptantha within 10 miles of the Project Area (CDFW 2017). The fallow fig orchard within the Project Area provides marginally suitable habitat for this species. Hoover's cryptantha has low potential to occur within the Project Area.

Spiny-Sepaled Button-Celery

Spiny-sepaled button-celery (*Eryngium spinosepalum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual/perennial that occurs in valley and foothill grassland and vernal pools (CNPS 2017). Spiny-sepaled button-celery blooms from April through June and is known to occur at elevations ranging from 262 to 3,199 feet above MSL (CNPS 2017). Spiny-sepaled button-celery is endemic to California; the current range of this species includes Contra Costa, Fresno, Kern, Madera, Merced, San Luis Obispo, Stanislaus, Tulare, and Tuolumne counties (CNPS 2017).

There are no documented occurrences of spiny-sepaled button-celery within 10 miles of the Project Area (CDFW 2017). The fallow fig orchard within the Project Area provides marginally suitable habitat for this species. Spiny-sepaled button-celery has low potential to occur within the Project Area.

Shining Navarretia

Shining navarretia (*Navarretia nigelliformis* ssp. *radians*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in vernal pools within cismontane woodland and valley or foothill grassland (CNPS 2017). Shining navarretia blooms April through July and is known to occur at elevations ranging from 213 to 3,281 feet above MSL (CNPS 2017). Shining navarretia is endemic to California; the current range of this species includes Alameda, Contra Costa, Colusa, Fresno, Madera, Merced, Monterey, San Benito, San Joaquin, and San Luis Obispo counties (CNPS 2017).

There are two documented occurrences of shining navarretia within 10 miles of the Project Area (CDFW 2017). The fallow fig orchard within the Project Area provides marginally suitable habitat for this species. Shining navarretia has low potential to occur within the Project Area.

4.6.2 Invertebrates

A total of four special-status invertebrate species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all four species were considered to be absent from the Project Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

4.6.3 Fish

A total of three special-status fish species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all three were considered to be absent from the Project Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

4.6.4 Amphibians

A total of three special-status amphibian species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, one of the species was considered to be absent from the Project Area due to the lack of suitable habitat. No further discussion of this species is provided in this analysis. Brief descriptions of the remaining two species that have the potential to occur within the Project Area are presented below.

California Tiger Salamander

The Central Valley Distinct Population Segment (DPS) of California tiger salamander (CTS, *Ambystoma californiense*) was listed as threatened by USFWS on August 4, 2004 (Federal Register Vol. 69, No. 149: 47212). The Santa Barbara County and Sonoma County DPS, both of which are disjunct from the larger range of the salamander, are federally listed as endangered. As of August 19, 2010, the CTS is listed as a threatened species under the California ESA throughout its range. Populations at the north and south edges of the historical distribution are extirpated, many populations within the interior of the range have been lost, and abundance has been reduced in many areas. Large areas of habitat conversion to agriculture and urban infrastructure have caused extirpations throughout Central California. Conversion of ephemeral breeding waters to perennial ponds and streams allows the introduction of predators and competitors including fish, crayfish (*Procambarus clarkii*), American bullfrogs (*Lithobates catesbeianus*), and (in some locations) introduced tiger salamanders (*Ambystoma tigrinum*) (Ryan et al. 2009). Hybridization with introduced tiger salamanders is a major threat, and in some populations hybrid vigor is leading to landscape-scale conservation problems (Fitzpatrick and Shaffer 2007). The distribution of hybrid tiger salamanders has been increasing quickly, such that researchers are very concerned for the genetic integrity of native populations (Ryan et al. 2009). On August 23, 2005, the USFWS published a final rule designating Critical Habitat for the Central Population of CTS (Federal Register Vol. 70, No.

162:49380). Critical Habitat was designated in 19 counties within four geographic regions of the Central population, for a total of ±199,109 acres (80,576 ha).

CTS is a member of the family Ambystomatidae; a group of salamanders confined to North America. This species is most commonly associated with intact annual grassland habitats and vernal pool landscapes but may also occur within open woodlands in low hills and valleys. CTS is endemic to California's Central Valley from Yolo County south to Kern County, and from Santa Barbara County north through the inner Coast Range to Sonoma County (USFWS 2003, 2015).

Necessary habitat components for CTS include intact open terrestrial landscapes used by adult for most of their life history, and ponded aquatic features where reproduction occurs. CTS spend most of their adult life within terrestrial subterranean refuges such as California ground squirrel (*Otospermophilus beecheyi*) or Botta's pocket gopher (*Thomomys bottae*) burrows (Stebbins 1972, Loredo et al. 1996). Foraging takes place within these subterranean refugia and out in the open at night or during rains. Suitable breeding sites include vernal pools, seasonal wetlands, stock ponds, or, rarely, slow-moving streams. They may use permanent manmade ponds if predatory species (e.g., fish, crayfish) are absent.

Adult CTS are generally nocturnal and may migrate over long distances (up to 1.8 miles) from upland habitats to breeding ponds (Trenham and Shaffer 2005, Searcy and Shaffer 2008). Breeding and egg-laying typically occurs between November and February (Shaffer and Fisher 1991) following relatively warm rain events. Eggs are laid singly or in small clumps on both submerged and emergent vegetation and debris in shallow water (Stebbins 1972, Shaffer and Fisher 1991, Barry and Shaffer 1994, Jennings and Hayes 1994). Adult females will usually remain at the pond for only a few days following egg-laying, whereas adult males may stay for several weeks. Larvae feed upon various aquatic invertebrates and occasionally on larvae of other amphibian species. Salamander larvae metamorphose during late spring or early summer, usually by the first week of July. The minimum length of time required for egg-laying through metamorphosis (requiring continuous inundation) is 10 weeks, usually extending into April. However, 12 weeks is more typical.

There are 47 documented occurrences of CTS within 10 miles of the Project Area (CDFW 2017). The Project Area does not provide suitable breeding or upland aestivation habitat for this species; however, the species may occasionally disperse through the Project Area. CTS has low potential to occur within the Project Area.

There is no Critical Habitat for this species within the Project Area.

Western Spadefoot

The western spadefoot (*Spea hammondii*) is not listed pursuant to either the California or federal ESAs; however, it is designated as an SSC by CDFW. Necessary habitat components of the western spadefoot include loose, friable soils in which to burrow in upland habitats and breeding ponds. Breeding sites include temporary rain pools such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Jennings and Hayes 1994). Spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoot

toads are known to occur from the Redding area, Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Jennings and Hayes 1994).

There are 15 documented occurrences of western spadefoot within 10 miles of the Project Area (CDFW 2017). The Project Area does not provide suitable breeding or upland aestivation habitat for this species; however, the species may occasionally disperse through the Project Area. Western spadefoot has low potential to occur within the Project Area.

4.6.5 Reptiles

A total of six special-status reptile species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, five species were considered to be absent from the Project Area due to the lack of suitable habitat or because the Project Area is outside of their geographical range. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining species that has the potential to occur within the Project Area is presented below.

Blainville's (Coast) Horned Lizard

Blainville's horned lizard (*Phrynosoma blainvillii*) is considered an SSC by CDFW. This species is a relatively large (to 105 mm in snout-vent length), dorsoventrally flattened, rounded lizard found historically from Redding, California, to Baja, Mexico (Jennings and Hayes 1994). Formally considered the coast horned lizard (*P. coronatum*), the species has gone through a long period of taxonomic instability (Jennings and Hayes 1994; **Montanucci** 2004, Leaché et al. 2009). This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands and coniferous forests, though it is most common along lowland desert sandy washes and chaparral (Stebbins 2003). In the Coast Ranges it occurs from Sonoma County south into Baja California (Zeiner et al. 1988). It occurs from sea level to 8,000 feet above MSL and an isolated population occurs in Siskiyou County (Stebbins 2003).

Like all horned lizards, Blainville's horned lizard is adorned with pointed and keeled scales, head spines, and parallel lateral fringes of scales, all of which serve to dissuade predators and aid in crypsis (Sherbrooke 2003). This is a ground-dwelling lizard, which does not use vertical structures except where they shade the ground (Stebbins and McGinnis 2012). Blainville's horned lizard is found in open microhabitats such as sandy washes with scattered shrubs or firebreaks in chaparral, where they forage for ants, small beetles and other insects (Jennings and Hayes 1994). Horned lizards (*Phrynosoma*) are native ant specialists and daily activities are centered on above-ground activity patterns of ants, with lizards active generally in mornings and later in the afternoon in the summer. They generally emerge from hibernation in March or April, and are active until September or later. Mating takes place in April through early May (Jennings and Hayes 1994), and an average of 12 (but up to 21) eggs are laid from April to June (Stebbins and McGinnis 2012). Hatchlings (25–27 mm in length) emerge from July through September (Stebbins and McGinnis 2012). Periods of daily or seasonal inactivity are spent within rodent burrows or underneath the soil or surface objects (CDFG 1988).

There are no documented occurrences of Blainville's horned lizard within 10 miles of the Project Area (CDFW 2017). The fallow fig orchard within the Project Area provides marginally suitable habitat for this species. Blainville's horned lizard has low potential to occur within the Project Area.

4.6.6 Birds

A total of nine special-status bird species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, six species were considered to be absent from the Project Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining three species that have the potential to occur within the Project Area are presented below.

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the federal or California ESAs; however, it is designated as a BCC by USFWS and an SSC by CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2011). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use manmade structures such as cement culverts or pipes; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (CDFG 2012).

There are three documented occurrences of burrowing owl within 10 miles of the Project Area (CDFW 2017). The Project Area provides marginally suitable habitat for this species, although no burrows were observed onsite during the field visit. Burrowing owl has low potential to occur within the Project Area.

California Horned Lark

The horned lark (*Eremophila alpestris*) is widely distributed throughout North America with 21 recognized subspecies (American Ornithologists' Union 1957). The California horned lark (*E. a. actia*) is one of approximately nine subspecies that breeds and/or winters in California, and is found in the Coast Range and southern San Joaquin Valley south into northern Baja California (Beason 1995). The California horned lark is resident and non-migratory. They are found in grasslands and other open habitats with sparse vegetation. Nests are grass-lined and built on the ground. Breeding season extends from March through July, with a peak of activity in May.

There are no documented occurrences of California horned lark within 10 miles of the Project Area (CDFW 2017). The Project Area provides marginally suitable habitat for this species. California horned lark has low potential to occur within the Project Area.

Swainson's Hawk

Swainson's hawk is listed as a threatened species and is protected pursuant to the California ESA. This species nests in North America (Canada, western United States, and Mexico) and typically winters from

South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2010). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel, ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanopulus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There are six documented occurrences of Swainson's hawk within 10 miles of the Project Area (CDFW 2017). The Project Area provides marginally suitable foraging habitat for this species. Swainson's hawk has low potential to occur within the Project Area.

4.6.7 Mammals

A total of five special-status mammal species were identified as having the potential to occur within the Project Area based on the literature review (Table 1). However, upon further analysis and after the site visit, four species were considered to be absent from the Project Area due to the lack of suitable habitat or because the Project Area was outside of their geographical range. No further discussion of these species is provided in this analysis. A brief description of the remaining species that has the potential to occur within the Project Area is presented below.

San Joaquin Kit Fox

The San Joaquin kit fox is listed as threatened under the California ESA and as endangered under the federal ESA. Although the precise historical range of the San Joaquin kit fox is unknown, (Grinnell et al. 1937) it is believed that prior to 1930, San Joaquin kit fox occupied most of the San Joaquin Valley from southern Kern County north to Tracy, San Joaquin County, on the west side, and near La Grange, Stanislaus County, on the east side. Since then the San Joaquin kit fox population has declined primarily as a result of habitat loss to agricultural, urban, industrial and mineral development in the San Joaquin Valley. San Joaquin kit fox has been listed as endangered for more than 30 years, yet despite the loss of habitat and apparent decline in numbers since the early 1970s, there has never been a comprehensive survey of its entire range or habitat that was once thought to be occupied (USFWS 1983; Morrell 1975). Despite the lack of a comprehensive data set, local surveys, research projects and incidental sightings indicate that kit foxes currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and near La Grange, Stanislaus County on the east side of the Valley (Williams in litt. 1990), and some of the larger scattered islands of natural land on the valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced Counties (USFWS 1998).

In the southern portion of the range, kit fox are commonly associated with valley sink, valley saltbrush, and upper Sonoran saltbrush scrub as well as annual grassland. Kit foxes also inhabit grazed grasslands, petroleum fields (Morrell 1971, O'Farrell 1980), and survive adjacent to tilled or fallow fields (Jensen 1972, Ralls and White 1991). In the central portion of the range, which includes Madera County, the kit fox is associated with valley sink, interior coast range saltbrush, upper Sonoran subshrub scrub, annual grassland, and the remaining native grasslands Agriculture dominates this region where kit foxes mostly inhabit grazed, non-irrigated grasslands, but also live next to and forage in tilled or fallow fields, irrigated row crops, orchards, and vineyards (USFWS 1998). In the northern portion of their range, kit foxes commonly are associated with annual grassland (Hall 1983) and valley oak woodland (Bell 1994). Kit foxes inhabit grazed grasslands, grasslands with wind turbines, and also live adjacent to and forage in tilled and fallow fields, and irrigated row crops (Bell 1994). They usually inhabit areas with loose-textured (friable) soils, suitable for den excavation (USFW 1983). Where soils make digging difficult, the foxes frequently use and modify burrows built by other animals (Orloff et al. 1986). Structures such as culverts, abandoned pipelines, and well casings also may be used as den sites (USFWS 1983).

Kit foxes are primarily nocturnal and carnivorous, but are commonly seen during the day in the late spring and early summer (Orloff et al. 1986). Major prey includes kangaroo rats, black-tailed hares, desert cottontails, deer mice, California ground squirrels, ground nesting birds, and insects (Scrivener et al. 1987).

There are no documented occurrences of San Joaquin kit fox within 10 miles of the Project Area (CDFW 2017). The Project Area does not provide suitable habitat for this species; however, the species may occasionally disperse through the Project Area. San Joaquin kit fox has low potential to occur within the Project Area.

4.7 Wildlife Movement/Corridors

The Project Area does not provide a high-quality wildlife movement corridor. However, common species as well as some special-status species might travel through the Project Area to reach adjacent areas.

5.0 RECOMMENDATIONS

5.1 Waters of the U.S. and State

No potential Waters of the U.S. or State were identified during the preliminary wetland assessment, therefore no measures are recommended.

5.2 Special-status Species

5.2.1 Plants

Four special-status plant species (beaked clarkia, Hoover's cryptantha, spiny-sepaled button celery, and shining navarretia) have low potential to occur within the Project Area. Special-status plant surveys have not been conducted within the Project Area.

The following measures are recommended to minimize potential impacts to special-status plants:

- Perform a focused special-status plant survey of the Project Area. The survey should be conducted during the identifiable period for the species (generally April-May) in accordance with guidelines promulgated by USFWS (USFWS 2000), CDFW (CDFG 2009), and CNPS (CNPS 2017).
- If no special-status plants are found within the Project Area, no further measures pertaining to special-status plants are recommended.
- If special-status plant species are found within the Project Area, avoidance zones may be established, if feasible, around plant populations to clearly demarcate areas for avoidance.
- If avoidance is not feasible, the appropriate agencies will be contacted for guidance.

5.2.2 Invertebrates

No special-status invertebrate species have potential to occur within the Project Area; therefore, no measures are recommended.

5.2.3 Fish

No special-status fish species have potential to occur within the Project Area; therefore, no measures are recommended.

5.2.4 Amphibians

Two special-status amphibian species (CTS and western spadefoot) have low potential to occur within the Project Area.

The following measures are recommended to minimize potential impacts to special-status amphibians:

California Tiger Salamander and Western Spadefoot

- Conduct a preconstruction survey for CTS and western spadefoot within 14 days prior to construction activities. If western spadefoot is found, consultation with CDFW is recommended prior to initiation of construction activities. If CTS is found, consultation with CDFW and USFWS is recommended prior to the initiation of construction activities.
- Prior to the initiation of construction activities the project biologist will provide a worker environmental awareness program (WEAP) training for construction personnel. The training will include photos of special-status species with the potential to occur within the Project Area, as well as descriptions of their habitat requirements and life histories.
- If CTS or western spadefoot is observed within the Project Area during construction activities, the project biologist will be notified and CDFW (for western spadefoot) or CDFW and USFWS (for CTS) will be contacted for guidance.

5.2.5 Reptiles

One special-status reptile species (Blainville's horned lizard) has low potential to occur within the Project Area.

The following measures are recommended to minimize potential impacts to special-status reptiles:

Blainville's Horned Lizard

- Conduct a preconstruction survey for Blainville's horned lizard within 14 days prior to construction activities. If Blainville's horned lizard is found, consultation with CDFW is recommended prior to the initiation of construction activities.

5.2.6 Special-status Birds and MBTA Protected Birds

Three special-status bird species (burrowing owl, California horned lark, and Swainson's hawk) have potential to occur within the Project Area. In addition to the above listed special-status birds, all native birds, including raptors, are protected under the California Fish and Game Code and migratory birds are protected pursuant to the Federal MBTA.

The following measures are recommended to minimize potential impacts to all special-status birds and birds protected by the MBTA:

- Conduct a preconstruction nesting bird survey of all suitable habitat within the Project Area within 14 days of the commencement of construction during the nesting season (February 1 –August 31). Surveys should be conducted within 0.5 mile of the Project Area for Swainson's hawk, 300 feet of the Project Area for nesting raptors, including burrowing owl, and 100 feet of the Project Area for nesting songbirds.
- If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW, but is recommended to be 300 feet for raptors and 50 feet for nonraptor songbirds. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest. Once the young are independent of the nest, no further measures are necessary.
- Preconstruction nesting bird surveys are not required for construction activity outside the nesting season.

5.2.7 Mammals

One special-status mammal species (San Joaquin kit fox) has potential to occur within the Project Area.

The following measures are recommended to minimize potential impacts to special-status mammals:

San Joaquin Kit Fox

- Conduct a preconstruction survey for San Joaquin kit fox within 14 days prior to construction activities. If San Joaquin kit fox is found, consultation with CDFW and USFWS is recommended prior to the initiation of construction activities.

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LIST OF ATTACHMENTS

ATTACHMENT A

CNDDB, USFWS IPAC, and CNPS Database Searches

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Daulton (3711918) OR Raymond (3711928) OR Knowles (3711927) OR Raynor Creek (3712021) OR Kismet (3712011) OR Madera (3612081) OR Gregg (3611988) OR Lanes Bridge (3611987) OR Little Table Mtn. (3711917))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G3	S3	1B.3
Castilleja campestris var. succulenta succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cryptantha hooveri Hoover's cryptantha	PDBOR0A190	None	None	GH	SH	1A
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eryngium spinosepalum spiny-sepaled button-celery	PDAPI0Z0Y0	None	None	G2	S2	1B.2
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Gambelia sila blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	G1	S1	FP
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Leptosiphon serrulatus Madera leptosiphon	PDPLM09130	None	None	G3	S3	1B.2
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lupinus citrinus var. citrinus orange lupine	PDFAB2B103	None	None	G2T2	S2	1B.2
Lytta moesta moestan blister beetle	IICOL4C020	None	None	G2	S2	
Lytta molesta molestan blister beetle	IICOL4C030	None	None	G2	S2	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Orcuttia pilosa hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1

Record Count: 40

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

13 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3712021, 3711928, 3711927, 3712011, 3711918, 3711917, 3612081 3611988 and 3611987;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun,Aug,Sep,Oct	1B.2	S2	G2
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S3	G3
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	4.3	S3	G3
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	1A	SH	GH
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
Lupinus citrinus var. citrinus	orange lupine	Fabaceae	annual herb	Apr-Jul	1B.2	S2	G2T2
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	1B.2	S2	G4T2
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

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Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: October 16, 2017
Consultation Code: 08ESMF00-2018-SLI-0127
Event Code: 08ESMF00-2018-E-00349
Project Name: Z Global Bodega Solar Project Madera Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-0127

Event Code: 08ESMF00-2018-E-00349

Project Name: Z Global Bodega Solar Project Madera Project

Project Type: POWER GENERATION

Project Description: Solar Project

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.05623131707689N119.98050100310215W

Counties: Madera, CA

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/321

Steelhead *Oncorhynchus (=Salmo) mykiss*	Threatened

Population: Northern California DPS
There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/1007

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover *Castilleja campestris ssp. succulenta*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/8095

Hairy Orcutt Grass *Orcuttia pilosa*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/2262

San Joaquin Orcutt Grass *Orcuttia inaequalis*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/5506

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.

ATTACHMENT B

Representative Site Photographs

View facing east across the Project Area with the pistachio orchard to the north visible to the left and the mulched fig tree piles visible to the right. Photo taken October 20, 2017.

View of the cell phone tower and associated structure within the central western portion of the Project Area. Photo taken October 20, 2017.

View of the detention basin within the northeastern corner of the Project Area. Photo taken October 20, 2017.

View facing west through the center of the Project Area. The cell phone tower is visible in the center of the photo, and the gas station/minimart just to the left of it in the background. Photo taken October 20, 2017.

Community and Economic Development
Environmental Health Division
Dexter Marr
Deputy Director

- 200 W. Fourth St.
- Suite 3100
- Madera, CA 93637
- TEL (559) 661-5191
- FAX (559) 675-6573
- TDD (559) 675-8970

MEMORANDUM

TO: Robert Mansfield

FROM: Dexter Marr, Environmental Health Division

DATE: September 5, 2018

RE: APEX Energy Solutions, LLC - Conditional Use Permit - Madera (031-091-038-000)

Comments

TO: Planning Division
FROM: Environmental Health Division
DATE: September 5, 2018
RE: Conditional Use Permit (CUP) #2018-020, APEX Energy – Madera APN 031-091-038

Environmental Health Division comments:

During the construction phase, provide portable restroom facilities and maintain restroom facilities.

The construction and then ongoing operation must be done in a manner that shall not allow any type of public nuisance(s) to occur including but not limited to the following nuisance(s); Dust, Odor(s), Noise(s), Lighting, Vector(s) or Litter. This must be accomplished under accepted and approved Best Management Practices (BMP) and as required by the County General Plan, County Ordinances and any other related State and/or Federal jurisdiction.

If there are any questions or comments regarding these conditions/requirements contact this Division at (559) 675-7823.

COUNTY OF MADERA
DEPARTMENT OF PUBLIC WORKS

AHMAD M. ALKHAYYAT
DIRECTOR

200 West 4th Street
Madera, CA 93637-8720
Main Line - (559) 675-7811
Special districts - (559) 675-7820
Fairmead Landfill - (559) 665-1310

MEMORANDUM

DATE: September 5, 2018

TO: Robert Mansfield

FROM: Haden Hinkle, Public Works Department, Capital Improvements Division

SUBJECT: APEX Energy Solutions, LLC - Conditional Use Permit - Madera (031-091-038-000)

Comments

The applicant shall submit a stamped grading and drainage plan and application to the County prior to the issuance of a Commercial Permit. If applicable, drainage or onsite storage calculations will need to be submitted to the Public Works Department for review and approval as well. This plan shall identify onsite retention for any increase in storm water runoff generated by the proposed development. The grading, drainage plan, and calculations shall be prepared by a licensed professional.

Storm Water Design Criteria:

- The project would be required to design the detention/retention facilities to withstand the 100 year 10 day storm event, and would be required to mitigate for the difference in pre and post development run-off.

All National Pollution Discharge Elimination System (NPDES) storm water regulations and standards shall be met. It is possible that the quality of storm water may be affected by pollutants. The applicant shall mitigate any impacts associated with storm water contamination caused by this project. A Storm Water Pollution Prevention Plan (SWPPP) is required for all projects 1-acre or more of site disturbance.

Please contact the Public Works Department with any questions.

Haden Hinkle
Madera County Public Works Department
200 W. 4th Street, 3rd Floor
Madera, CA 93637
P 559.675.7811 ext 3503
haden.hinkle@maderacounty.com

Community and Economic Development
Fire Prevention Division
Deborah Mahler, Fire Marshal
Deputy Director

- 200 W. Fourth St.
- Suite 3100
- Madera, CA 93637
- TEL (559) 661-5191
- FAX (559) 675-6573
- TDD (559) 675-8970

MEMORANDUM

TO: Kamara Biawogi

FROM: Deborah Mahler, Fire Marshal

DATE: October 16, 2018

RE: APEX Energy Solutions, LLC - Conditional Use Permit - Madera (031-091-038-000)

Conditions

A Knox emergency access entry device or lock shall be installed prior to construction permit final on the primary gated entry point.

Kamara Biawogi

From: Robert Mansfield
Sent: Monday, September 17, 2018 9:21 AM
To: Kamara Biawogi
Subject: FW: CUP 2018-020

Good morning Kamara,

For some reason this was sent to me instead of you. It is for APEX.

Robert Mansfield, MURP, AICP | Senior Planner
Community & Economic Development Department Planning Division
200 W. 4th Street, Suite 3100, Madera, CA 93637
Office: (559)675-7821 EXT. 3226

From: Padilla, Dave@DOT [mailto:dave.padilla@dot.ca.gov]
Sent: Monday, September 17, 2018 9:18 AM
To: Robert Mansfield
Cc: Jamie Bax; Navarro, Michael@DOT
Subject: CUP 2018-020

Good Morning Robert,

We have no concerns with the proposed solar project.

Thank you

David Padilla, Associate Transportation Planner
Office of Planning & Local Assistance
1352 W. Olive Avenue
Fresno, CA 93778-2616
Office: (559) 444-2493, Fax: (559) 445-5875
District 6

TABLE MOUNTAIN RANCHERIA
TRIBAL GOVERNMENT OFFICE

September 20, 2018

Emily Lane, Planner
Madera County
200 W. 4th Street, Suite 3100
Madera, Ca. 93637

RE: Conditional Use Permit Madera 031-091-038-000

To: Emily Lane

This is in response to your letter dated, September 4, 2018, regarding, Conditional Use Permit Madera 031-091-038-000.

We appreciate receiving notice; however, this project site is beyond our area of interest.

Sincerely,

Robert Pennell
Cultural Resources Director

23736
Sky Harbour Road
Post Office
Box 410
Friant
California
93626
(559) 822-2587
Fax
(559) 822-2693

Environmental Checklist Form

Title of Proposal: CUP#2018-020 – APEX Energy Solutions, LLC (Conditional Use Permit)
WCC#2018-001 (Williamson Act Contract Management)

Date Checklist Submitted: January 8, 2019

Agency Requiring Checklist: Madera County CE&D, Planning Division

Agency Contact: Kamara Biawogi **Phone:** (559) 675-7821 ext.3251

Description of Initial Study/Requirement

The Initial Study is a public document used by the decision-making lead agency to determine whether a project may have significant effects on the environment. In the case of the proposed project, the Madera County Planning Department, acting as lead agency, will use the initial study to determine whether the project has a significant effect on the environment. In accordance with CEQA, Guidelines (Section 15063[a]), an environmental impact report (EIR) must be prepared if there is substantial evidence (such as results of the Initial Study) that a project may have significant effect on the environment. This is true regardless of whether the overall effect of the project would be adverse or beneficial. A negative declaration (ND) or mitigated negative declaration (MND) may be prepared if the lead agency determines that the project would have no potentially significant impacts or that revisions to the project, or measures agreed to by the applicant, mitigate the potentially significant impacts to a less-than-significant level.

The initial study considers and evaluates all aspects of the project which are necessary to support the proposal. The complete project description includes the site plan, operational statement, and other supporting materials which are available in the project file at the office of the Madera County Planning Department.

Description of Project:

This is a request for a Conditional Use Permit to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit. Since the parcel is under the Williamson Act Contract, the applicant will have to exit out the contract due to the proposed project's use being non-agricultural. The project is located on the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera.

Project Location:

The subject property is located on the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera.

Applicant Name and Address:

APEX Energy Solutions, LLC
604 Sutter Street, Suite 250
Folsom, CA 95630

General Plan Designation:

AE (Agricultural Exclusive)

Zoning Designation:

ARE-40 (Agricultural Rural Exclusive-40 Acre) District

Surrounding Land Uses and Setting:

Agricultural, Commercial

Other Public Agencies whose approval is required:

None

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 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.

☐ _____

Prior EIR or ND/MND Number

_____ January 8, 2019

Signature Date

I. AESTHETICS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Discussion:

(a & c) Less Than Significant Impact. The visual character of the overall project could potentially stand out due to its surrounding parcels being zoned for agriculture and commercial. There are no historic buildings on the parcel.

(b). No Impact. There will be no substantial damage to scenic resources. Due to the rather flat terrain on the parcel, no soil or tree removal will be required and only a minimal amount of grading would be needed.

(d) Less Than Significant Impact with Mitigation Incorporation. New light source generated from the proposed project will be from onsite security purposes and during the construction phase of the project. Mitigation shall be placed to hood and direct lighting downward and away from adjoining parcels.

A nighttime sky in which stars are readily visible is often considered a valuable scenic/visual resource. In urban areas, views of the nighttime sky are being diminished by “light pollution.” Light pollution, as defined by the International dark-Sky Association, is any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Two elements of light pollution may affect city residents: sky glow and light trespass. Sky glow is a result of light fixtures that emit a portion of their light directly upward into the sky where light scatters, creating an orange-yellow glow above a city or town. This light can interfere with views of the nighttime sky and can diminish the number of stars that are visible. Light trespass occurs when poorly shielded or poorly aimed fixtures cast light into unwanted areas, such as neighboring property and homes.

Light pollution is a problem most typically associated with urban areas. Lighting is necessary for nighttime viewing and for security purposes. However, excessive lighting or inappropriately designed lighting fixtures can disturb nearby sensitive land uses through indirect illumination. Land uses which are considered “sensitive” to this unwanted light include residences, hospitals, and care homes.

Daytime sources of glare include reflections off of light-colored surfaces, windows, and metal details on cars traveling on nearby roadways. The amount of glare depends on the intensity and direction

of sunlight, which is more acute at sunrise and subset because the angle of the sun is lower during these times.

II.		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
	AGRICULTURE AND FOREST 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 Dept. 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:				
	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 Resource Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526) or timberland zoned Timberland Protection (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
	d) Result in the loss of forest land or conversion of forest land to non-forest land?	☐	☐	☐	☒
	e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion:

(a, e) Less Than Significant Impact. The Farmland Mapping and Monitoring Program of the California Resources Agency classifies the current parcel as Unique Farmland. Being that the proposed project is a non-agricultural use, the entire project area would lose its designation for Unique Farmland. The facility will be occupying 19 acres of the 19.35 acre parcel. With the solar facility covering more than

80% of the parcel, the impact of the viability of the project area for farming may be diminished. No other harmful impacts from the proposed project has been recognized. The project will be generating, storing, and distributing energy back into the surrounding region for the community.

(b) Less Than Significant Impact with Mitigation Incorporation. The project is on a parcel that is enrolled in the Williamson Act. The proposed project is a non-agricultural use and is not consistent with the Williamson Act Contract. It is listed as a mitigation that APEX Energy Solutions will have to exit out of the contract prior to the commencement of operations for the proposed solar facility. A Reclamation Plan, required by the Surface Mining and Reclamation Act (SMARA), and is listed as a condition for the applicant to submit.

(c, d) No Impact. There are no forest land, or zoning for forest land, in the vicinity of the project site.

General Information

The California Land Conservation Act of 1965 -- commonly referred to as the Williamson Act -- enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

The Department of Conservation oversees the Farmland Mapping and Monitoring Program. The Farmland Mapping and Monitoring Program (FMMP) produce maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance. The program's definition of farmland classification is below:

PRIME FARMLAND (P): Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

FARMLAND OF STATEWIDE IMPORTANCE (S): Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

UNIQUE FARMLAND (U): Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

FARMLAND OF LOCAL IMPORTANCE (L): Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

GRAZING LAND (G): Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

URBAN AND BUILT-UP LAND (D): Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

OTHER LAND (X): Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

CONFINED ANIMAL AGRICULTURE: Poultry facilities, feedlots, and dairy facilities – this use may be a component of Farmland of Local Importance in some counties.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management 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 Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion:

(a-b) No Impact. No significant impacts have been identified as a result of this project. The proposed project will not obstruct implementation of any air quality plans. The proposed project will have vehicles visiting the site only four times a year for maintenance purposes. The project is consistent with the Air Quality Element of the General Plan.

(c) Less than Significant Impact. There may be a less than significant impact due to the oncoming vehicles during construction phase. Most of those vehicles will stay on site until construction is complete. Other vehicles will be hauling and delivering materials for the proposed project.

(d-e) No Impact. There have been no substantial pollutant or odors identified with this project.

Global Climate Change

Climate change is a shift in the "average weather" that a given region experiences. This is measured by changes in temperature, wind patterns, precipitation, and storms. Global climate is the change in the climate of the earth as a whole. It can occur naturally, as in the case of an ice age, or occur as a result of anthropogenic activities. The extent to which anthropogenic activities influence climate change has been the subject of extensive scientific inquiry in the past several decades. The Intergovernmental Panel on Climate Change (IPCC), recognized as the leading research body on the subject, issued its Fourth Assessment Report in February 2007, which asserted that there is "very high confidence" (by IPCC definition, a 9 in 10 chance of being correct) that human activities have resulted in a net warming of the planet since 1750.

CEQA requires an agency to engage in forecasting "to the extent that an activity could reasonably be expected under the circumstances. An agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal" (CEQA Guidelines Section 15144, Office of Planning and Research commentary, citing the California Supreme Court decision in *Laurel Heights Improvement Association* v. *Regents of the University of California* [1988] 47 Cal. 3d 376).

Recent concerns over global warming have created a greater interest in greenhouse gases (GHG) and their contribution to global climate change (GCC). However at this time there are no generally accepted thresholds of significance for determining the impact of GHG emissions from an individual project on GCC. Thus, permitting agencies are in the position of developing policy and guidance to ascertain and mitigate to the extent feasible the effects of GHG, for CEQA purposes, without the normal degree of accepted guidance by case law.

IV.	BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh,	☐	☐	☒	☐

	vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion:

A biological resources assessment was performed to assess the potential impact for special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the project Area. The proposed solar facility project does not provide a high-quality wildlife movement corridor. However, common species as well as some special-status species might travel through the Project Area to reach adjacent areas.

(a, d) Less Than Significant with Mitigation Incorporation.

Four special-status plant species (beaked clarkia, Hoover's cryptantha, spiny-sepaled button celery, and shining navarretia) have low potential to occur within the Project Area. Special-status plant surveys have not been conducted within the Project Area. Mitigation measures have been recommended to minimize potential impacts to special-status plants.

Two special-status amphibian species (CTS and western spadefoot) have low potential to occur within the Project Area. Mitigation measures have been recommended to minimize potential impacts to special-status amphibians. Review mitigation monitoring report form for listed mitigations.

One special-status reptile species (Blainville's horned lizard) has low potential to occur within the Project Area. Mitigation measures have been recommended to minimize potential impacts to special-status amphibians. Review mitigation monitoring report form for listed mitigations.

Three special-status bird species (burrowing owl, California horned lark, and Swainson's hawk) have potential to occur within the Project Area. In addition to the above listed special-status birds, all native birds, including raptors, are protected under the California Fish and Game Code and migratory birds are protected pursuant to the Federal MBTA. Mitigation measures have been recommended minimize potential impacts to all special-status birds and birds protected by the MBTA. Review mitigation monitoring report form for listed mitigations.

One special-status mammal species (San Joaquin kit fox) has potential to occur within the Project Area. Mitigation measures have been recommended to minimize potential impacts to special-status mammals. Review mitigation monitoring report form for listed mitigations.

(b) Less Than Significant Impact. The proposed solar facility project does not provide a high-quality wildlife movement corridor. However, common species as well as some special-status species might travel through the Project Area to reach adjacent areas.

(c) Less Than Significant Impact. No potential Waters of the U.S. or State were identified during the preliminary wetland assessment; therefore, no measures were recommended.

(e-f) No Impact. No impacts have been identified as a result of this project.

A preliminary wetland assessment was conducted within the Project Area during the October 20, 2017 site visit. There is a small detention basin at the far northeastern corner of the site. This feature was surveyed during the site visit and found to have no apparent hydrological indicators. No potential wetlands or Waters of the U.S. were identified within the Project Area, however, a formal Waters of the U.S. delineation has not been conducted according to USACE standards.

There are no federally protected wetlands on or in the vicinity of this project. There are no streams or bodies of water of which migratory fish or other species that would use bodies of water would be impacted by this project.

The site is a rural lot surrounded by agricultural and commercial land. While there is a chance that any of the listed species might migrate through, given the proposed development on the site and its surroundings it is unlikely any habitats exist.

While the list below shows a number of species listed in the quadrangle in which this project is located, this does not necessarily mean that these species are actually located on the project site either in a habitat setting or migrating through. As mentioned, given the development in the immediate area, the chances of disturbing any species are considerably minimal.

General Information

Special Status Species include:

- Plants and animals that are legally protected or proposed for protection under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA);
- Plants and animals defined as endangered or rare under the California Environmental Quality Act (CEQA) §15380;
- Animals designated as species of special concern by the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Game (CDFG);
- Animals listed as “fully protected” in the Fish and Game Code of California (§3511, §4700, §5050 and §5515); and
- Plants listed in the California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Vascular Plants of California.

A review of both the County’s and Department of Fish and Game’s databases for special status species have identified the following species:

Species	Federal Listings	State Listings	Dept. of Fish and Game Listings	CNPS Listings
California tiger salamander	Threatened	Threatened	WL	-
western spadefoot	None	None	SSC	-
Swainson's hawk	None	Threatened	-	-
tricolored blackbird	None	Candidate Endangered	SSC	-
burrowing owl	None	None	SSC	-
vernal pool fairy shrimp	Threatened	None	-	-
California linderiella	None	None	-	-
American badger	None	None	SSC	-
western pond turtle	None	None	SSC	-
Northern Hardpan Vernal Pool	None	None	-	-
succulent owl's-clover	Threatened	Endangered	-	1B.2
San Joaquin Valley Orcutt grass	Threatened	Endangered	-	1B.1
hairy Orcutt grass	Endangered	Endangered	-	1B.1
shining navarretia	None	None	-	1B.2

Daulton Quadrangle

List 1A: Plants presumed extinct

List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.

List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere

List 3 Plants which more information is needed – a review list

List 4: Plants of Limited Distributed - a watch list

Ranking

0.1 – Seriously threatened in California (high degree/immediacy of threat)

0.2 – Fairly threatened in California (moderate degree/immediacy of threat)

0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known)

SSC Species of Special Concern

WL Watch List

FP Fully Protected

Effective January 1, 2007, Senate Bill 1535 took effect that has changed de minimis findings

procedures. The Senate Bill takes the de minimis findings capabilities out of the Lead Agency hands and puts the process into the hands of the California Department of Fish and Wildlife (formally the California Department of Fish and Game). A Notice of Determination filing fee is due each time a NOD is filed at the jurisdictions Clerk's Office. The authority comes under Senate Bill 1535 (SB 1535) and Department of Fish and Wildlife Code 711.4. Each year the fee is evaluated and has the potential of increasing. For the most up-to-date fees, please refer to: http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html.

The Valley elderberry longhorn beetle was listed as a threatened species in 1980. Use of the elderberry bush by the beetle, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the elderberry's use by the beetle is an exit hole created by the larva just prior to the pupal stage. According to the USFWWS, the Valley Elderberry Longhorn Beetle habitat is primarily in communities of clustered Elderberry plants located within riparian habitat. The USFWS stated that VELB habitat does not include every Elderberry plant in the Central Valley, such as isolated, individual plants, plants with stems that are less than one inch in basal diameter or plants located in upland habitat.

Wetlands are defined under Title 33 §328.3 of the California Code of Regulations as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

V. CULTURAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion:

(a - d) Less Than Significant with Mitigation Incorporation.
A cultural resources inventory report was conducted for the proposed solar facility. The inventory included a records search, literature review, and field survey. The records search results indicated that no previous cultural resources studies have been conducted within the Project Area and that no cultural resources have been previously recorded in the Project Area. No cultural resources were identified on the property as a result of the records search and field survey. Therefore, no Historic Properties for Section 106 purposes or Historical Resources as defined by CEQA will be affected by the proposed Project.

Due to the presence of alluvium along the nearby Fresno River, and given the likelihood of prehistoric archaeological sites located along perennial waterways, there exists the potential for buried prehistoric archaeological sites in the Project Area.

Mitigation for the management of unanticipated discoveries are provided. Review mitigation monitoring report form for listed mitigations.

General Information

Public Resource Code 5021.1(b) defines a historic resource as "any object building, structure, site, area or place which is historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." These resources are of such import, that it is codified in CEQA (PRC Section 21000) which prohibits actions that "disrupt, or adversely affect a prehistoric or historic archaeological site or a property of historical or cultural significance to a community or ethnic or social groups; or a paleontological site except as part of a scientific study."

Archaeological importance is generally, although not exclusively, a measure of the archaeological research value of a site which meets one or more of the following criteria:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory.
- Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions.
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.
- Is at least 100 years old and possesses substantial stratigraphic integrity (i.e. it is essentially undisturbed and intact).
- Involves important research questions that historic research has shown can be answered only with archaeological methods.

(CEQA Guidelines §15064.5 for definitions)

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plan and animal fossils. Paleontological resources represent limited, non-renewable and impact sensitive and educational resources. Most of the paleontological finds have been on the valley floor.

VI. GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact

a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
	ii) Strong seismic ground shaking?	☐	☐	☐	☒
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
	iv) Landslides?	☐	☐	☐	☒
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion:

(a – e) No Impact. The parcel is in an area where it is topographically not conducive to landslides, so therefore there will be no impacts. There will be no soil or tree removal needed for this proposed project. Topographical maps indicate a relatively flat area with minimal increases in elevation heading from west to east on the property. There are no known impacts that will occur as a direct or indirect result of this project.

General Information

Madera County is divided into two major physiographic and geologic provinces: the Sierra Nevada Range and the Central Valley. The Sierra Nevada physiographic province in the northeastern portion of the county is underlain by metamorphic and igneous rock. It consists mainly of homogenous types of granitic rocks, with several islands of older metamorphic rock. The central and western parts of the county are part of the Central Valley province, underlain by marine and non-marine sedimentary rocks.

The foothill area of the county is essentially a transition zone, containing old alluvial soils that have been dissected by the west-flowing rivers and streams which carry runoff from the Sierra Nevada's.

Seismicity varies greatly between the two major geologic provinces represented in Madera County. The Central Valley is an area of relatively low tectonic activity bordered by mountain ranges on either side. The Sierra Nevada's, partly within Madera County, are the result of movement of tectonic plates which resulted in the creation of the mountain range. The Coast Ranges on the west side of the Central Valley are also a result of these forces, and continued movement of the Pacific and North American tectonic plates continues to elevate the ranges. Most of the seismic hazards in Madera County result from movement along faults associated with the creation of these ranges.

There are no active or potentially active faults of major historic significance within Madera County. The County does not lie within any Alquist Priolo Special Studies Zone for surface faulting or fault creep. However, there are two significant faults within the larger region that have been and will continue to be, the principle sources of potential seismic activity within Madera County.

San Andreas Fault: The San Andreas Fault lies approximately 45 miles west of the county line. The fault has a long history of activity and is thus a concern in determining activity in the area.

Owens Valley Fault Group: The Owens Valley Fault Group is a complex system containing both active and potentially active faults on the eastern base of the Sierra Nevada Range. This group is located approximately 80 miles east of the County line in Inyo County. This system has historically been the source of seismic activity within the County.

The *Draft Environmental Impact Report* for the state prison project near Fairmead identified faults within a 100 mile radius of the project site. Since Fairmead is centrally located along Highway 99 within the county, this information provides a good indicator of the potential seismic activity which might be felt within the County. Fifteen active faults (including the San Andreas and Owens Valley Fault Group) were identified in the *Preliminary Geotechnical Investigation*. Four of the faults lie along the eastern portion of the Sierra Nevada Range, approximately 75 miles to the northeast of Fairmead. These are the Parker Lake, Hartley Springs, Hilton Creek and Mono Valley Faults. The remaining faults are in the western portion of the San Joaquin Valley, as well as within the Coast Range, approximately 47 miles west of Fairmead. Most of the remaining 11 faults are associated with the San Andreas, Calaveras, Hayward and Rinconada Fault Systems which collectively form the tectonic plate boundary of the Central Valley.

In addition, the Clovis Fault, although not having any historic evidence of activity, is considered to be active within quaternary time (within the past two million years), is considered potentially active. This fault line lies approximately six miles south of the Madera County line in Fresno County. Activity along this fault could potentially generate more seismic activity in Madera County than the San Andreas or Owens Valley fault systems. However, because of the lack of historic activity along the Clovis Fault, there is inadequate evidence for assessing maximum earthquake impacts.

Seismic ground shaking, however, is the primary seismic hazard in Madera County because of the County's seismic setting and its record of historical activity (General Plan Background Element and Program EIR). The project represents no specific threat or hazard from seismic ground shaking, and all new construction will comply with current local and state building codes. Other geologic hazards, such as landslides, lateral spreading, subsidence, and liquefaction have not been known to occur within Madera County.

According to the Madera County General Plan Background Report, groundshaking is the primary

seismic hazard in Madera County. The valley portion of Madera County is located on alluvium deposits, which tend to experience greater groundshaking intensities than areas located on hard rock. Therefore, structures located in the valley will tend to suffer greater damage from groundshaking than those located in the foothill and mountain areas.

Liquefaction is a process whereby soil is temporarily transformed to a fluid form during intense and prolonged ground shaking. According to the Madera County General Plan Background Report, although there are areas of Madera County where the water table is at 30 feet or less below the surface, soil types in the area are not conducive to liquefaction because they are either too coarse in texture or too high in clay content; the soil types mitigate against the potential for liquefaction.

VII. GREENHOUSE GAS EMISSIONS - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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 an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion:

(a - b) Less Than Significant Impact. The proposed operation will have a less than significant impact relating to emitting greenhouse gases to the atmosphere. What little greenhouse gases generated will be from vehicular traffic related to construction on the site. Most of those vehicles will stay on site until construction is complete. Other vehicles will be hauling and delivering materials for the proposed project. After construction, the site will be visited four times a year due to maintenance work.

Greenhouse Gas (GHG) Emissions: The potential effect of greenhouse gas emission on global climate change is an emerging issue that warrants discussion under CEQA. Unlike the pollutants discussed previously that may have regional and local effects, greenhouse gases have the potential to cause global changes in the environment. In addition, greenhouse gas emissions do not directly produce a localized impact, but may cause an indirect impact if the local climate is adversely changed by its cumulative contribution to a change in global climate. Individual development projects contribute relatively small amounts of greenhouse gases that when added to other greenhouse gas producing activities around the world would result in an increase in these emissions that have led many to conclude is changing the global climate. However, no threshold has been established for what would constitute a cumulatively considerable increase in greenhouse gases for individual development projects. The State of California has taken several actions that help to address potential global climate change impacts.

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, outlines goals for local

agencies to follow in order to bring Greenhouse Gas (GHG) emissions to 1990 levels (a 25% overall reduction) by the year 2020. The California Air Resources Board (CARB) holds the responsibility of monitoring and reducing GHG emissions through regulations, market mechanisms and other actions. A Draft Scoping Plan was adopted by CARB in order to provide guidelines and policy for the State to follow in its steps to reduce GHG. According to CARB, the scoping plan's GHG reduction actions include: direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

Following the adoption of AB 32, the California State Legislature adopted Senate Bill 375, which became the first major bill in the United States that would aim to limit climate change by linking directly to "smart growth" land use principles and transportation. It adds incentives for projects which intend to be in-fill, mixed use, affordable and self-contained developments. SB 375 includes the creation of a Sustainable Communities Strategy (SCS) through the local Metropolitan Planning Organizations (MPO) in order to create land use patterns which reduce overall emissions and vehicle miles traveled. Incentives include California Environmental Quality Act streamlining and possible exemptions for projects which fulfill specific criteria.

VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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 Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people	☐	☐	☐	☒

	residing or working in the project area?				
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion:

(a - b) Less Than Significant Impact. The operations of the proposed project will have a less than significant impact due to the conditions regarding storm water design that our Public Works Department has required.

(c – h) No Impact. No impacts have been identified as a result of this project.

General Information

Any hazardous material because of its quantity, concentration, physical or chemical properties, pose a significant present or potential hazard to human health and safety, or the environment the California legislature adopted Article I, Chapter 6.95 of the Health and Safety Code, Sections 25500 to 25520 that requires any business handling or storing a hazardous material or hazardous waste to establish a Business Plan. The information obtained from the completed Business Plans will be provided to emergency response personnel for a better-prepared emergency response due to a release or threatened release of a hazardous material and/or hazardous waste.

Business owners that handle or store a hazardous material or mixtures containing a hazardous material, which has a quantity at any one time during the year, equal to or greater than:

1) A total of 55 gallons,
2) A total of 500 pounds,
3) 200 cubic feet at standard temperature and pressure of compressed gas,
4) Any quantity of Acutely Hazardous Material (AHM).

Assembly Bill AB 2286 requires all business and agencies to report their Hazardous Materials Business Plans to the Certified Unified Program Agency (CUPA) information electronically at http://cers.calepa.ca.gov

IX.	HYDROLOGY AND WATER QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact

a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	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?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☒
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion:

(a – b) No Impact. No impacts have been identified as a result of this project.

(c - e) Less than Significant Impact. The operations of the proposed project will have a less than significant impact due to the conditions that our Public Works Department has placed which requires the applicant to submit a grading, drainage, and storm water design plan prior to issuance of a building

permit.

(f) No Impact. There is no known impacts that could potentially effect the water quality

(g - h) Less than Significant Impact. The storm water design that our Public Works Department has required must be able to withstand the 100 year 10 day storm event and would be required to mitigate for the difference in pre and post development run-off.

(i – j) No Impact.

General Information

Groundwater quality contaminants of concern in the Valley Floor include high salinity (total dissolved solids), nitrate, uranium, arsenic, methane gas, iron, manganese, slime production, and dibromochloropropane with the maximum contaminant level exceeded in some areas. Despite the water quality issues noted above, most of the groundwater in the Valley Floor is of suitable quality for irrigation. Groundwater of suitable quality for public consumption has been demonstrated to be present in most of the area at specific depths.

Groundwater quality contaminants of concern in the Foothills and Mountains include manganese, iron, high salinity, hydrogen sulfide gas, uranium, nitrate, arsenic, and methylbutylethylene (MTBE) with the maximum concentration level being exceeded in some areas. Despite these problems, there are substantial amounts of good-quality groundwater in each of the areas evaluated in the Foothills and Mountains. Iron and manganese are commonly removed by treatment. Uranium treatment is being conducted on a well by the Bass Lake Water Company.

A seiche is an occasional and sudden oscillation of the water of a lake, bay or estuary producing fluctuations in the water level and caused by wind, earthquakes or changes in barometric pressure. A tsunami is an unusually large sea wave produced by seaquake or undersea volcanic eruption (from the Japanese language, roughly translated as “harbor wave”). According to the California Division of Mines and Geology, there are no active or potentially active faults of major historic significance within Madera County. As this property is not located near any bodies of water, no impacts are identified.

The flood hazard areas of the County of Madera are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. These flood losses are caused by uses that are inadequately elevated, floodproofed, or protected from flood damage. The cumulative effect of obstruction in areas of special flood hazards which increase flood height and velocities also contribute to flood loss.

X. LAND USE AND PLANNING – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy	☐	☐	☐	☒

	or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion:

(a - c) No Impact. This project will not physically divide an existing community or be an impact on habitat conservation plans.

XI.	MINERAL RESOURCES – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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?	☐	☐	☐	☒

Discussion:

(a - b) No Impact. There are no known minerals in the vicinity of the project site.

XII.	NOISE – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d)	A substantial temporary or periodic increase in				

	ambient levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion:

(a) Less Than Significant Impact. The nature of the proposed solar facility will minimally increase the ambient noise levels due to the PV system operating almost silently. This is an unmanned facility. The site will only be visited four times a year for maintenance work.

(b - c) No Impact. The proposed project is projected to have no real significant increase in ambient noise levels.

(d) Less Than Significant Impact. During the temporary construction for the proposed facility, there might be an increase in ambient noise. This temporary increase will only occur during daylight hours and will have a less than significant impact on noise levels.

(e - f) No Impact. This project is not within proximity to an airstrip or airport. It is not within an airport/airspace overlay district. There will be no impacts as a result.

General Discussion

The Noise Element of the Madera County General Plan (Policy 7.A.5) provides that noise which will be created by new non-transportation noise sources shall be mitigated so as not to exceed the Noise Element noise level standards on lands designated for noise-sensitive uses. However, this policy does not apply to noise levels associated with agricultural operations. All the surrounding properties, while include some residential units, are designated and zoned for agricultural uses. This impact is therefore considered less than significant.

Construction noise typically occurs intermittently and varies depending upon the nature or phase of construction (e.g. demolition/land clearing, grading and excavation, erection). The United States Environmental Protection Agency has found that the average noise levels associated with construction activities typically range from approximately 76 dBA to 84 dBA Leq, with intermittent individual equipment noise levels ranging from approximately 75 dBA to more than 88 dBA for brief periods.

Short Term Noise

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given the noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g. trees, buildings, and fences), outdoor receptors within approximately 400 feet of construction site could experience maximum noise levels of greater than 70 dBA when onsite construction-related noise levels exceed

approximately 89 dBA at the project site boundary. Construction activities that occur during the more noise-sensitive eighteen hours could result in increased levels of annoyance and sleep disruption for occupants of nearby existing residential dwellings. As a result, noise-generating construction activities would be considered to have a potentially significant short-term impact. However with implementation of mitigation measures, this impact would be considered less than significant.

Long Term Noise

Mechanical building equipment (e.g. heating, ventilation and air conditioning systems, and boilers), associated with the proposed structures, could generate noise levels of approximately 90 dBA at 3 feet from the source. However, such mechanical equipment systems are typically shielded from direct public exposure and usually housed on rooftops, within equipment rooms, or within exterior enclosures.

Landscape maintenance equipment, such as leaf blowers and gasoline powered mowers, could result in intermittent noise levels that range from approximately 80 to 100 dBA at 3 feet, respectively. Based on an equipment noise level of 100 dBA, landscape maintenance equipment (assuming a noise attenuation rate of 6 dBA per doubling of distance from the source) may result in exterior noise levels of approximately 75 dBA at 50 feet.

MAXIMUM ALLOWABLE NOISE EXPOSURE FOR
NON-TRANSPORTATION NOISE SOURCES*

		Residential	Commercial	Industrial (L)	Industrial (H)	Agricultural
Residential	AM	50	60	55	60	60
	PM	45	55	50	55	55
Commercial	AM	60	60	60	65	60
	PM	55	55	55	60	55
Industrial (L)	AM	55	60	60	65	60
	PM	50	55	55	60	55
Industrial (H)	AM	60	65	65	70	65
	PM	55	60	60	65	60
Agricultural	AM	60	60	60	65	60
	PM	55	55	55	60	55

*As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers at the property line.

AM = 7:00 AM to 10:00 PM
PM = 10:00 PM to 7:00 AM
L = Light
H = Heavy

Note: Each of the noise levels specified above shall be lowered by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).

Sensitive Noise Receptors include residential areas, hospitals, schools, performance spaces, businesses, and religious congregations.

Vibrating objects in contact with the ground radiate energy through the ground. Vibrations from large and/or powerful objects are perceptible by humans and animals. Vibrations can be generated by construction equipment and activities. Vibrations attenuate depending on soil characteristics and distance. Vibration perception threshold: The minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of one-tenth (0.1) inches per second over the range of one to one hundred Hz.

Reaction of People and Damage to Buildings from Continuous Vibration Levels		
Velocity Level, PPV (in/sec)	**Human Reaction**	**Effect on Buildings**
0.006 to 0.019	Threshold of perception; possibility of intrusion	Damage of any type unlikely
0.08	Vibration readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Continuous vibration begins to annoy people	Virtually no risk of architectural damage to normal buildings
0.20	Vibration annoying to people in buildings	Risk of architectural damage to normal dwellings such as plastered walls or ceilings
0.4 to 0.6	Vibration considered unpleasant by people subjected to continuous vibrations vibration	Architectural damage and possibly minor structural damage
Source: Whiffen and Leonard 1971		

XIII. POPULATION AND HOUSING -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

(a - c) No Impact. The operations of the proposed facility will not induce population growth, displace any homes, require construction of replacement homes, or displace persons.

The area surrounding this parcel is a mix of residentially and agriculturally zoned parcels. There is residential structures surrounding the parcel.

According to the California Department of Finance, in January of 2012, the County wide population was 152,074 with a total of 49,334 housing units. This works out to an average of 3.33 persons per housing unit. The vacancy rate was 11.84%.

XIV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:				
i) Fire protection?	☐	☐	☒	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion:

(a – i) Less than Significant Impact. There is a minimal chance that the proposed unmanned solar facility could potentially start a grass fire in the area.

The Madera County Fire Department exists through a contract between Madera County and the CALFIRE (California Department of Forestry and Fire Prevention) and operates six stations for County responses in addition to the state-funded CALFIRE stations for state responsibility areas. Under an "Amador Plan" contract, the County also funds the wintertime staffing of four fire seasonal CALFIRE stations. In addition, there are ten paid-call (volunteer) fire companies that operate from their own stations. The administrative, training, purchasing, warehouse, and other functions of the Department operate through a single management team with County Fire Administration.

The facility is across Highway 41 from one California Department of Forestry (CDF) station. The sole structure proposed for the project site will need to be built pursuant to the most current Building and Fire/Life Safety codes.

No new facilities are necessary as a result of the project.

(a - ii) No Impact. Crime and emergency response is provided by the Madera County Sherriff's Department. There will be an incidental need for law enforcement in the events of theft and vandalism on the project site.

A Federal Bureau of Investigations 2009 study suggests that there is on average of 2.7 law enforcement officials per 1,000 population for all reporting counties. The number for cities had an average of 1.7 law enforcement officials per 1,000 population.

(a iii - v) No Impact. No impacts are anticipated as a result of this project as it does not relate to any educational programs, or increase the surrounding population.

Single Family Residences have the potential for adding to school populations. The average per Single Family Residence is:

Grade	Student Generation per Single Family Residence
K – 6	0.425
7 – 8	0.139
9 – 12	0.214

(a - iv) No Impact. No impacts are anticipated as a direct, indirect, short or long term impact as a result of this project.

The Madera County General Plan allocates three acres of park available land per 1,000 residents' population.

(a - v) No Impact. No impacts identified as a result of this project.

XV. RECREATION	Potentially Significant	Less Than Significant	Less Than Significant	No Impact

		Impact	with Mitigation Incorporation	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?	☐	☐	☐	☒

Discussion:

(a - b) No Impact. No impacts have been identified to recreational facilities as a result of this project.

The Madera County General Plan allocates three acres of park available land per 1,000 residents' population.

XVI.	TRANSPORTATION/TRAFFIC -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b)	Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards, established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c)	Result in a change in air traffic patterns,				

	including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e)	Result in inadequate emergency access?	☐	☐	☐	☒
f)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion:

(a - f) No Impact. No impacts have been identified as a result of this project. The proposed project will be an unmanned facility. The site will be visited approximately four times a year for maintenance purposes. There will be little to no up-tick of traffic.

In the area around the proposed project, opportunities for bicycles and pedestrians, especially as an alternative to the private automobile, are significantly limited by lack of developed shoulders, sidewalks or pavement width accommodating either mode. The condition is not uncommon in rural areas where distances between origins and destinations are long and the terrain is either rolling or mountainous. In the locations outside urbanized portions of the County, the number of non-recreational pedestrians/cyclists would likely be low, even if additional facilities were provided.

As with most rural areas, Madera County is served by limited alternative transportation modes. Currently, only limited public transportation facilities or routes exist within the area. Volunteer systems such as the driver escort service, as well as the senior bus system, operate for special purpose activities and are administered by the Madera County Action Committee. The rural densities which are prevalent throughout the region have typically precluded successful public transit systems, which require more concentrated populations in order to gain sufficient ridership.

Local circulation is largely deficient with these same State Highways and County Roads composing the only existing network of through streets. Most local streets are dead-end drives, many not conforming to current County improvement standards. Existing traffic, particularly during peak hour and key intersections, already exhibits congestion.

During the period of any potential construction of the project, it is expected that there will be some construction related vehicles.

Madera County currently uses Level Of Service “D” as the threshold of significance level for roadway and intersection operations. The following charts show the significance of those levels.

Level of Service	Description	Average Control Delay (sec./car)

A	Little or no delay	0 – 10
B	Short traffic delay	>10 – 15
C	Medium traffic delay	> 15 – 25
D	Long traffic delay	> 25 – 35
E	Very long traffic delay	> 35 – 50
F	Excessive traffic delay	> 50

Unsignalized intersections.

Level of Service	Description	Average Control Delay (sec./car)
A	Uncongested operations, all queues clear in single cycle	< 10
B	Very light congestion, an occasional phase is fully utilized	>10 – 20
C	Light congestion; occasional queues on approach	> 20 – 35
D	Significant congestion on critical approaches, but intersection is functional. Vehicles required to wait through more than one cycle during short peaks. No long-standing queues formed.	> 35 – 55
E	Severe congestion with some long-standing queues on critical approaches. Traffic queues may block nearby intersection(s) upstream of critical approach(es)	> 55-80
F	Total breakdown, significant queuing	> 80

Signalized intersections.

Level of service	Freeways	Two-lane rural highway	Multi-lane rural highway	Expressway	Arterial	Collector
A	700	120	470	720	450	300
B	1,100	240	945	840	525	350
C	1,550	395	1,285	960	600	400
D	1,850	675	1,585	1,080	675	450
E	2,000	1,145	1,800	1,200	750	500

Capacity per hour per lane for various highway facilities

Madera County is predicted to experience significant population growth in the coming years (62.27 percent between 2008 and 2030). Accommodating this amount of growth presents a challenge for attaining and maintain air quality standards and for reducing greenhouse gas emissions. The increase

in population is expected to be accompanied by a similar increase in vehicle miles traveled (VMT) (61.36 percent between 2008 and 2030).

Horizon Year	Total Population (thousands)	Employment (thousands)	Average Weekday VMT (millions)	Total Lane Miles
2010	175	49	5.4	2,157
2011	180	53	5.5	NA
2017	210	63	6.7	NA
2020	225	68	7.3	2,264
2030	281	85	8.8	2,277

Source: MCTC 2007 RTP

The above table displays the predicted increase in population and travel. The increase in the lane miles of roads that will serve the increase in VMT is estimated at 120 miles or 0.94 percent by 2030. This indicates that roadways in Madera County can be expected to become much more crowded than is currently experienced.

Emissions of CO (Carbon Monoxide) are the primarily mobile-source criteria pollutant of local concern. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed and delay. Carbon monoxide transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (residents, school children, hospital patients, the elderly, etc.). As a result, the SJVAPCP recommends analysis of CO emissions of at a local rather than regional level. Local CO concentrations at intersections projected to operate at level of service (LOS) D or better do not typically exceed national or state ambient air quality standards. In addition, non-signalized intersections located within areas having relatively low background concentrations do not typically have sufficient traffic volumes to warrant analysis of local CO concentrations.

As with most rural areas, Madera County is served by limited alternative transportation modes. Currently, only limited public transportation facilities or routes exist within the area. Volunteer systems such as the driver escort service, as well as the senior bus system, operate for special purpose activities and are administered by the Madera County Action Committee. The rural densities which are prevalent throughout the region have typically precluded successful public transit systems, which require more concentrated populations in order to gain sufficient ridership.

XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the				

	construction of which could cause significant environmental effects?	☐	☐	☐	☒
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e)	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?	☐	☐	☐	☒
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

(a – c, e - g) No Impact. No impacts identified as a result of this project.

(d) Less than Significant with Mitigation Incorporation. The applicant indicated that there will be 4,000 gallon water trucks during construction. After construction, the only water required for operation would be for panel washing for the facility. The amount of water needed for the two to four washings per year is estimated to be approximately 0.04 to 0.71 acre-feet, or 11,600 to 23,200 per year. All water will be provided by tanker trucks.

General Discussion

Madera County has 34 County Service Areas and Maintenance Districts that together operate 30 small water systems and 16 sewer systems. Fourteen of these special districts are located in the Valley Floor, and the remaining 20 special districts are in the Foothills and Mountains. MD-1 Hidden Lakes, Bass Lake (SA-2B and SA-2C) and SA-16 Sumner Hill have surface water treatment plants, with the remaining special districts relying solely on groundwater.

The major wastewater treatment plants in the County are operated in the incorporated cities of Madera and Chowchilla and the community of Oakhurst. These wastewater systems have been recently or are planned to be upgraded, increasing opportunities for use of recycled water. The cities of Madera and Chowchilla have adopted or are in the process of developing Urban Water Management Plans. Most of the irrigation and water districts have individual groundwater management plans. All of these

agencies engage in some form of groundwater recharge and management.

Groundwater provides almost the entire urban and rural water use and about 75 percent of the agricultural water use in the Valley Floor. The remaining water demand is met with surface water. Almost all of the water use in the Foothills and Mountains is from groundwater with only three small water treatment plants relying on surface water from the San Joaquin River and its tributaries.

In areas of higher precipitation (Oakhurst, North Fork, and the topographically higher part of the Coarsegold Area), groundwater recharge is adequate for existing uses. However, some problems have been encountered in parts of these areas due to well interference and groundwater quality issues. In areas of lower precipitation (Raymond-Hensley Lake and the lower part of the Coarsegold area), groundwater recharge is more limited, possibly requiring additional water supply from other sources to support future development.

Madera County is served by a solid waste facility (landfill) in Fairmead. There is a transfer station in North Fork. The Fairmead facility also provides for Household Hazardous Materials collections on Saturdays. The unincorporated portion of the County is served by Red Rock Environmental Group. Above the 1000 foot elevation, residents are served by EMADCO services for solid waste pick-up.

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

indirectly?

Discussion:

CEQA defines three types of impacts or effects:

- Direct impacts are caused by a project and occur at the same time and place (CEQA §15358(a)(1).

- Indirect or secondary impacts are reasonably foreseeable and are caused by a project but occur at a different time or place. They may include growth inducing effects and other effects related to changes in the pattern of land use, population density or growth rate and related effects on air, water and other natural systems, including ecosystems (CEQA §15358(a)(2).

- Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA §15355(b)). Impacts from individual projects may be considered minor, but considered retroactively with other projects over a period of time, those impacts could be significant, especially where listed or sensitive species are involved.

(a - c) No Impact. While there have been some minimal impacts identified through this study, none are considered significant in and of themselves, and/or cumulative inducing enough to be considered significant. With appropriate mitigations, those impacts can be reduced to less than significant or not significant.

Documents/Organizations/Individuals Consulted
In Preparation of this
Initial Study

California Department of Finance

California Department of Transportation (CALTRANS)

California Integrated Waste Management Board

California Environmental Quality Act Guidelines

United States Environmental Protection Agency

Caltrans website http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm accessed October 31, 2008

California Department of Fish and Game "California Natural Diversity Database" http://www.dfg.ca.gov/biogeodata/cnddb/

Madera County Department of Public Works

Madera County Environmental Health Department

Madera County Fire Marshall's Department

Madera County General Plan

Madera County Integrated Regional Water Management Plan

Regional Water Quality Control Board

State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011 and 2012, with 2010 Benchmark.* Sacramento, California, May 2012

MITIGATED NEGATIVE DECLARATION MND

RE: CUP #2018-020 – APEX Energy Solutions

LOCATION AND DESCRIPTION OF PROJECT:

The subject property is located on the east side of Road 600, approximately 430 feet northeast of its intersection with Road 31 (no situs) Madera. This is a request for a Conditional Use Permit to construct a 3.0 megawatt (MW) solar photovoltaic electric generating and energy storage facility that will tie into the PG&E Storey 1109 12kV Distribution Circuit. Since the parcel is under the Ag Preserve contract, the applicant will have to cancel the existing contract due to the proposed project's use not being consistent with the Ag Preserves conditions.

ENVIRONMENTAL IMPACT:

No adverse environmental impact is anticipated from this project. The following mitigation measures are included to avoid any potential impacts.

BASIS FOR NEGATIVE DECLARATION:

See attached

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Madera County Environmental Committee

A copy of the negative declaration and all supporting documentation is available for review at the Madera County Planning Department, 200 West Fourth Street, Ste. #3100, Madera, California.

DATED: January 8, 2019
FILED:
PROJECT APPROVED: