

**SECTION 1 EXECUTIVE SUMMARY****1.1 INTRODUCTION**

San Joaquin Solar 1 LLC and San Joaquin Solar 2 LLC, collectively referred to as San Joaquin Solar 1&2 LLC (SJS 1&2 LLC), (also referred to as Applicant) hereby applies for certification for the proposed San Joaquin Solar 1&2 Hybrid Project (Project), which will consist of two hybrid design solar thermal electric generating plants (the Plants), comprising a solar field and biomass facility for each plant. The two Plants will each produce up to a nominal 53.4 megawatts (MW) net of renewable energy. The two Plants will be owned and operated by San Joaquin Solar 1 LLC and San Joaquin Solar 2 LLC. The electricity generated by the Plants will meet the requirements of two 53.4 MW power purchase agreements (PPAs) with the Pacific Gas and Electric Company (PG&E). Section 2.0, Project Objectives, describes the contracts in more detail.

The Applicant is seeking approval from the California Energy Commission (CEC) to construct and operate the Plants within southwestern Fresno County. The Plants will apply solar thermal technology in combination with biomass combustion to provide renewable energy. Heat derived from the collection of solar radiation, complemented by heat derived from the combustion of biomass during periods of limited solar radiation, will power a conventional steam turbine generator (STG).

The Project will be located in an unincorporated area of southwestern Fresno County (see Figure 1.1-1), east of the City of Coalinga and southwest of Huron, California. The Project is approximately 8 miles north of Kings County. Each Plant includes a solar field, biomass facility, power block and transmission interconnection. The Project site will encompass one full section (640 acres) of tilled farm land comprising the entirety of Section 3, Township 21 South, Range 16 East, adjacent to West Jayne Avenue to the north and two miles east of California Route 33. (Figure 1.1-2). The construction laydown area will be located entirely on the Project site. The transmission interconnection will include a new 13.8 kilovolt (kV) to 230 kV step-up transformer and approximately 6 miles of 230 kV transmission line.

The Project site is located in an area zoned for agricultural uses, as specified in the Fresno County General Land Use Plan. Existing and past land uses in this land use zone include transmission lines, the Gates Substation, agriculture, and rural residences.

Solar thermal technology provides a unique opportunity for hybrid generation, in that the STG can be fueled with steam produced by thermal energy supplied from the solar field or by thermal energy supplied by a biomass fired boiler. Biomass combustion enhances the Project's operating factor and economic performance by supplementing solar-based renewable energy production with clean, renewable biomass-based energy.

Biomass-based energy production will be subordinate to production from the solar field, supplementing solar production during shoulder solar hours and when solar radiation is limited by local weather conditions, and replacing solar production at night. Each Plant is designed to produce up to 53.4 MW net energy to the grid when sufficient solar energy is available. During peak solar hours, the facility will produce power solely from the solar field. When there is no solar radiation and energy production is only from biomass, each Plant will be capable of producing 40 MW of net energy to the grid.

This Application for Certification (AFC) has been prepared in accordance with the CEC's Rules of Practice and Procedure, and Power Plant Site Certification Regulations (April 2007), and is intended to provide the following:

- A detailed description of the proposed Project,
- An assessment of the anticipated Project impacts on the existing environment, and
- A discussion of compliance with applicable laws, ordinances, regulations, and standards (LORS).

The remainder of this Executive Summary summarizes the more detailed information presented in the balance of the AFC.

## **1.2 FACILITY LOCATION AND DESCRIPTION**

The Project footprint will occupy the entire 640-acre area of Section 3, Township 21 South, Range 16 East. The Project site is approximately 3 miles west of the intersection of Interstate 5 (I-5) and West Jayne Avenue. Figure 1.2-1 depicts the Project location and surrounding area. The construction laydown area will be approximately 15 acres, located in the mid-section of the site. The assessor parcel numbers (APN) for all the parcels located on Section 3 are 085-030-55S, 085-030-57S and 085-030-58S. Roadway access to the site will be from West Jayne Avenue, which runs adjacent and parallel to the northern border of the entire site.

The Project site currently consists primarily of previously disturbed agricultural land. The site is generally flat and slopes down gently to the southwest with elevations ranging from approximately 570 feet to 620 feet above mean sea level (msl). The surrounding area is devoted almost exclusively to the agricultural uses of farming and rangeland activities with Coalinga State Hospital located adjacent to the west of the Project site and a State Prison located directly to the west of the hospital.

### **1.2.1 Facility Description**

Major sections of each Plant include the solar field, biomass facility, power block and transmission interconnection. SJS 1 will be located on the northern portion of the site; SJS 2 will be on the southern portion. A rendering of an aerial view from the northwest of the two Plants is illustrated in Figure 1.2-2. The site plan for Project is provided as Figure 1.2-3.

During daytime solar hours, each Plant will generate 53.4 MW of net electric power production from the solar fields. When solar radiation is less intense, solar generation can be supported with biomass generation up to the rated capacity of the steam turbine. During nighttime hours, biomass combustion will provide up to 40 MW net from each Plant without any solar input and will maintain the solar field in a hot-standby condition such that quick transfer to solar production can be accomplished when solar radiation is again available.

**1.2.2 Water Supply and Discharge**

The water supply sources for the project will be treated effluent from the future City of Coalinga wastewater treatment facility and groundwater. The City of Coalinga's wastewater treatment effluent will be the main water supply for the project and groundwater from the existing onsite well will be used to augment the wastewater treated effluent supply during periods of peak use. Groundwater will be the main water source until the wastewater treated effluent is available for use in the second quarter of 2011.

**1.2.3 Transmission Facilities**

The Project transmission system will require construction of approximately 6 miles of 230 kV transmission line. Two potential transmission line routes are presented for certification. The first option (the northern route) extends from the northeast corner of the Project site on the south side of West Jayne Avenue, to the east approximately 5 miles, where it crosses to the north side of West Jayne Avenue and continues 0.25 mile to the Gates Substation. The second transmission line route (the southern route) extends from the southeast corner of the site to the east approximately 5 miles, traveling approximately one mile south of and parallel to West Jayne Avenue. After the transmission line crosses Interstate 5, it will travel north one mile to West Jayne Avenue either on the west side or the east side of Section 4, Township 21 South, Range 17 East. Figure 1.2-4 presents the proposed transmission line routes.

**1.2.4 Construction Laydown Area**

The construction laydown area will be approximately 15 acres, located in the center of Section 3. The construction laydown area includes areas for staging, equipment and material storage, assembly; construction offices and buildings. After construction is complete, the laydown area will be used as a maintenance yard/warehouse area.

**1.3 PROJECT SCHEDULE**

The Project anticipates receipt of the CEC license to construct by February 2010. Construction of the Project, from site preparation and grading to full commercial operation, is expected to take approximately 15 months. Site construction activities will commence in the fourth quarter of 2009 and continue through the 15-month construction schedule. It is currently anticipated that the Project will be on line and in commercial service by the first quarter of 2011.

**1.4 PROJECT OWNERSHIP**

The two Plants will be owned and operated by separate Limited Liability Corporations.

- Owner: San Joaquin Solar 1 LLC and San Joaquin Solar 2 LLC
- Operator: San Joaquin Solar 1 LLC and San Joaquin Solar 2 LLC

**1.5 SUMMARY OF ENVIRONMENTAL IMPACTS**

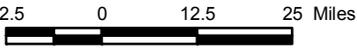
The proposed Project has the potential to adversely impact the existing environment. In order to limit potential Project impacts to a level of insignificance under normal operating conditions, the Applicant has carefully chosen the Project location and incorporated design elements that serve to decrease impacts. Section 5.0, Environmental Information, of this AFC assesses environmental impacts according to the following environmental resources:

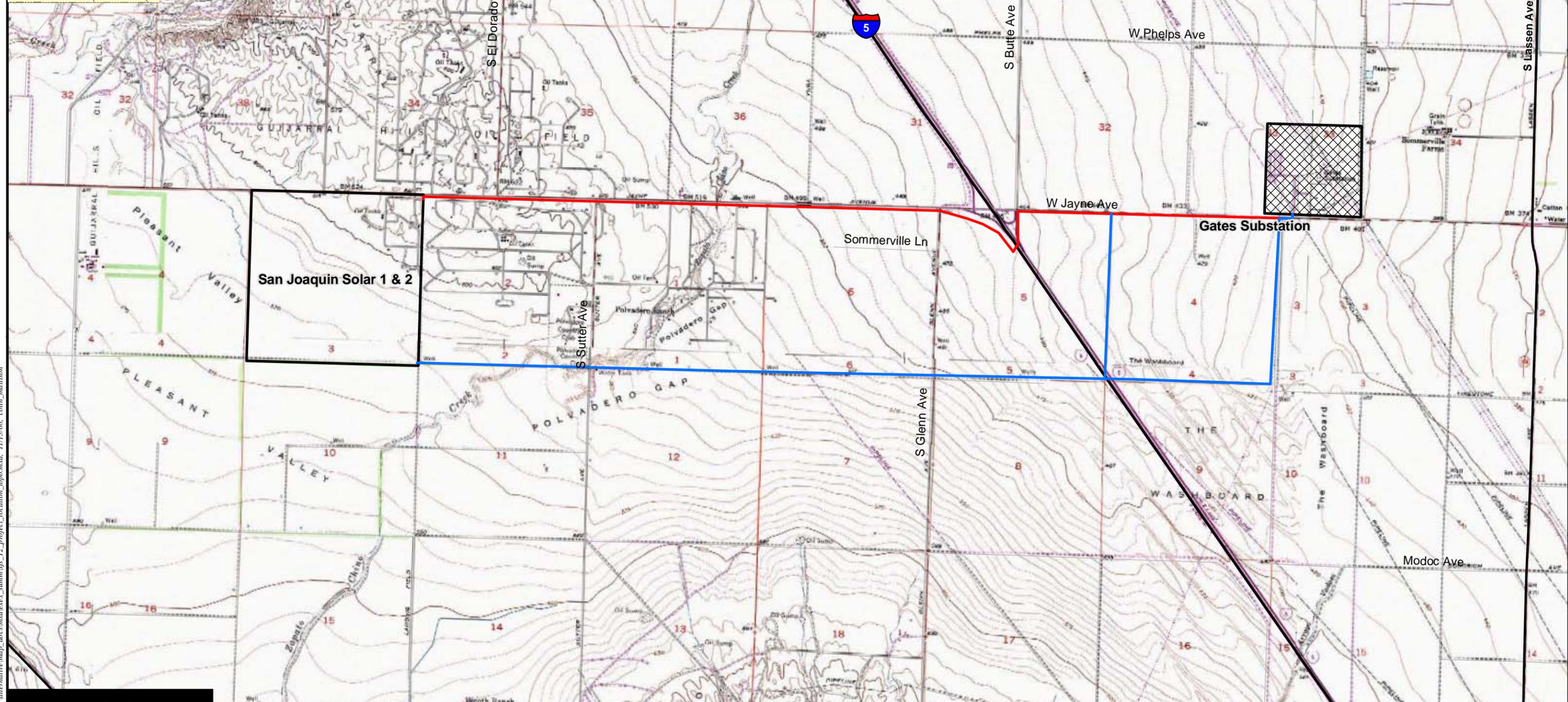
- 5.2 Air Quality
- 5.3 Geologic Hazards and Resources
- 5.4 Soil Resources
- 5.5 Water Resources
- 5.6 Biological Resources
- 5.7 Cultural Resources
- 5.8 Paleontological Resources
- 5.9 Land Use
- 5.10 Socioeconomics
- 5.11 Traffic and Transportation
- 5.12 Noise
- 5.13 Visual Resources
- 5.14 Waste Management
- 5.15 Hazardous Materials Handling
- 5.16 Public Health and Safety
- 5.17 Worker Safety
- 5.18 Cumulative Impacts



**San Joaquin Solar 1 & 2**

Path: G:\gis\projects\1577\2765803\1\alternative\map\_docs\mxd\exes\_summ\regional.mxd, 11/13/08, paul\_moreno

	SOURCES: ESRI (background).		<b>REGIONAL MAP</b> <b>SAN JOAQUIN SOLAR 1 &amp; 2</b>		
		 SCALE: 1" = 25 Miles (1:1,584,000) SCALE CORRECT WHEN PRINTED AT 8.5X11		CREATED BY CM	DATE: 11-13-08
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**LEGEND**

- San Joaquin Solar 1 & 2
- Gates Substation
- Transmission Line**
- Northern Route
- Southern Route

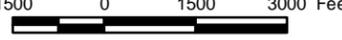


SOURCES:  
TOPO 24K (various dates);  
ESRI (roads).

**PROJECT VICINITY MAP**  
**SAN JOAQUIN SOLAR 1 & 2**



1500 0 1500 3000 Feet



SCALE: 1" = 3000' (1:36,000)  
SCALE CORRECT WHEN PRINTED AT 11X17

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OVERVIEW MAP



San Joaquin Solar 1 & 2



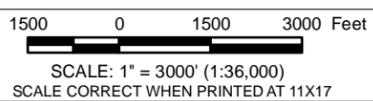
Gates Substation

**LEGEND**

- San Joaquin Solar 1 & 2
- Gates Substation



SOURCES:  
USDA FSA Aerial Photography Field Office (aerial 2005); CNDDB (Mar. 2008); ESRI (roads).

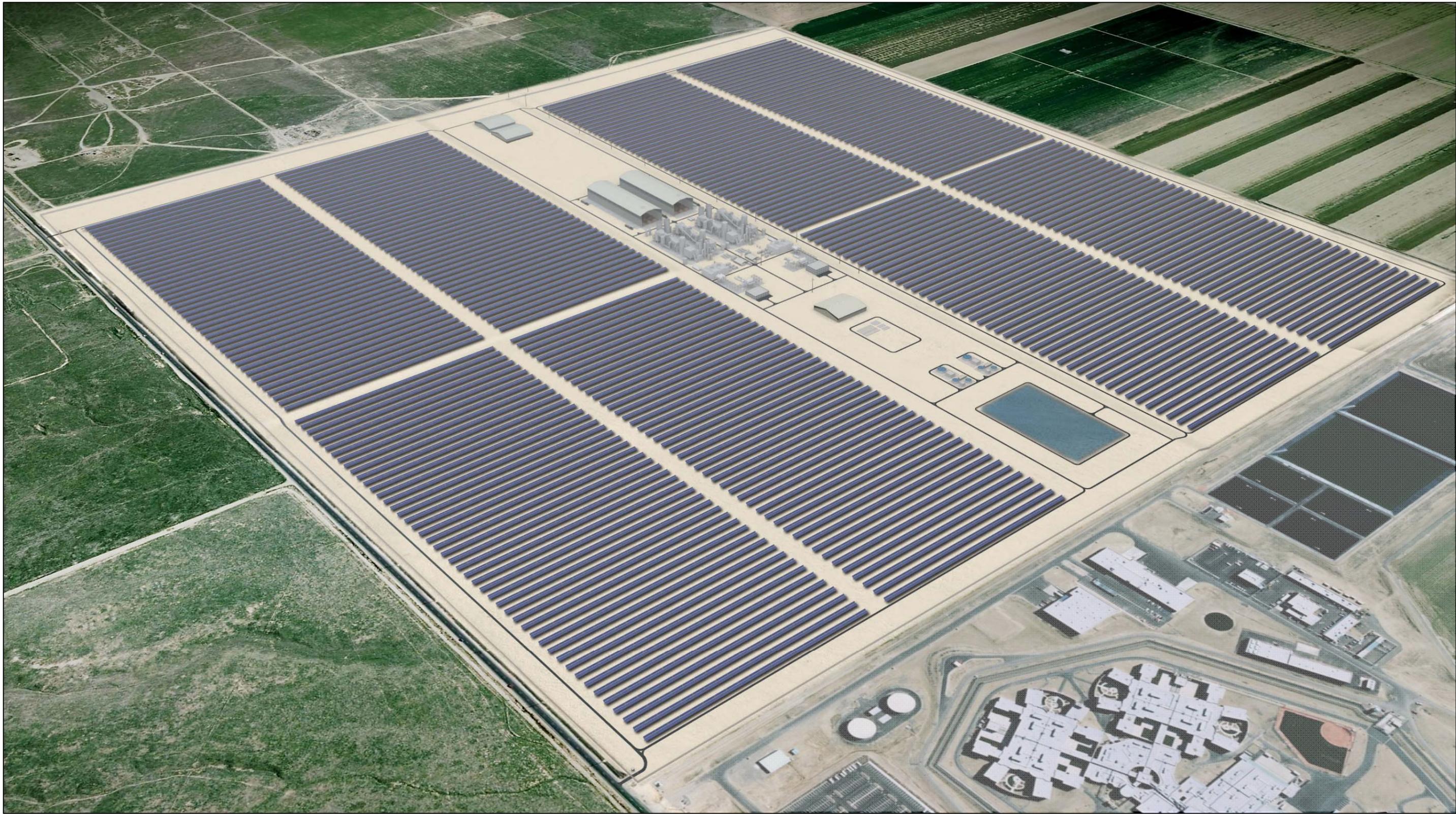


PROJECT LOCATION MAP  
SAN JOAQUIN SOLAR 1 & 2

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California NAIP aerial imagery is freely distributed by The California Spatial Information Library (CaSIL). CaSIL, the California Resources Agency, and the State of California are 2005 California NAIP Imagery funding partners



**URS**

**AERIAL RENDERING OF SAN JOAQUIN SOLAR 1 & 2**

NO SCALE

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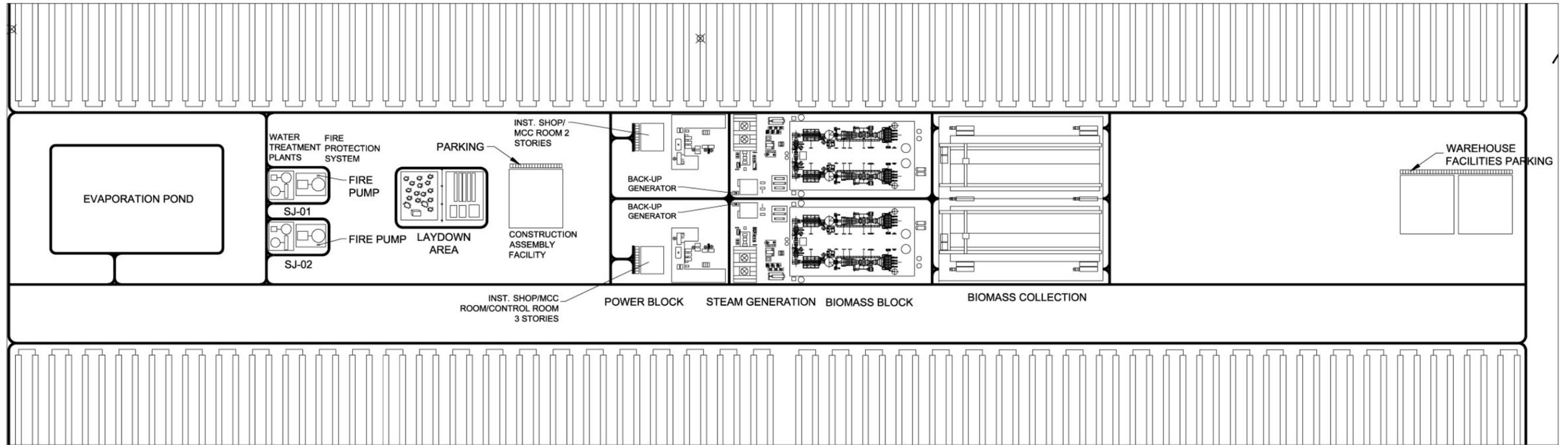
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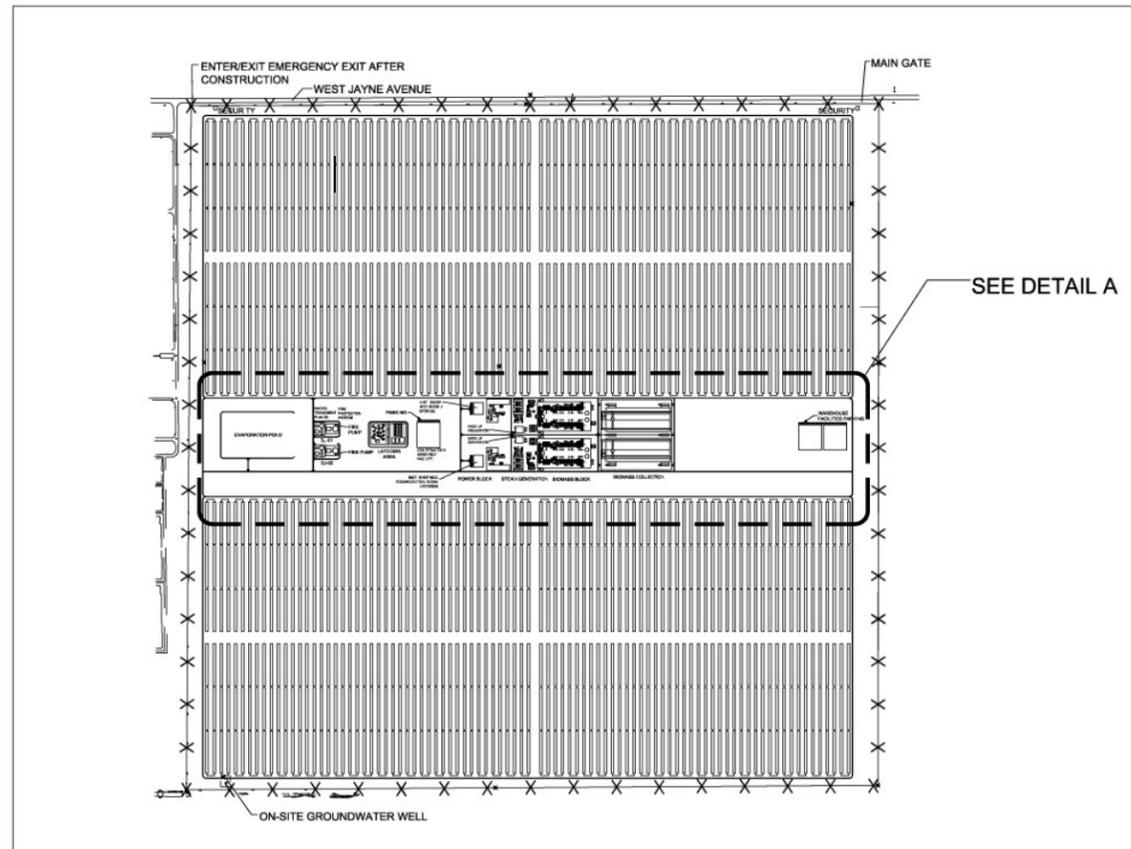
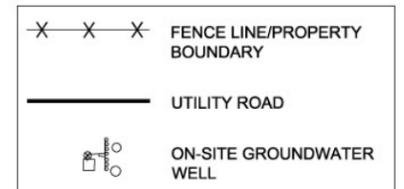
1.2-2



DETAIL A

SCALE: 1" = 150'  
-150' -75' 0' 150'

LEGEND



SITE PLAN

SCALE: 1" = 600'  
-600' -300' 0' 600'

SOURCE:  
Ford, Davis and Bacon (drawing 2008)

SITE PLAN  
SAN JOAQUIN SOLAR 1 & 2



NO SCALE

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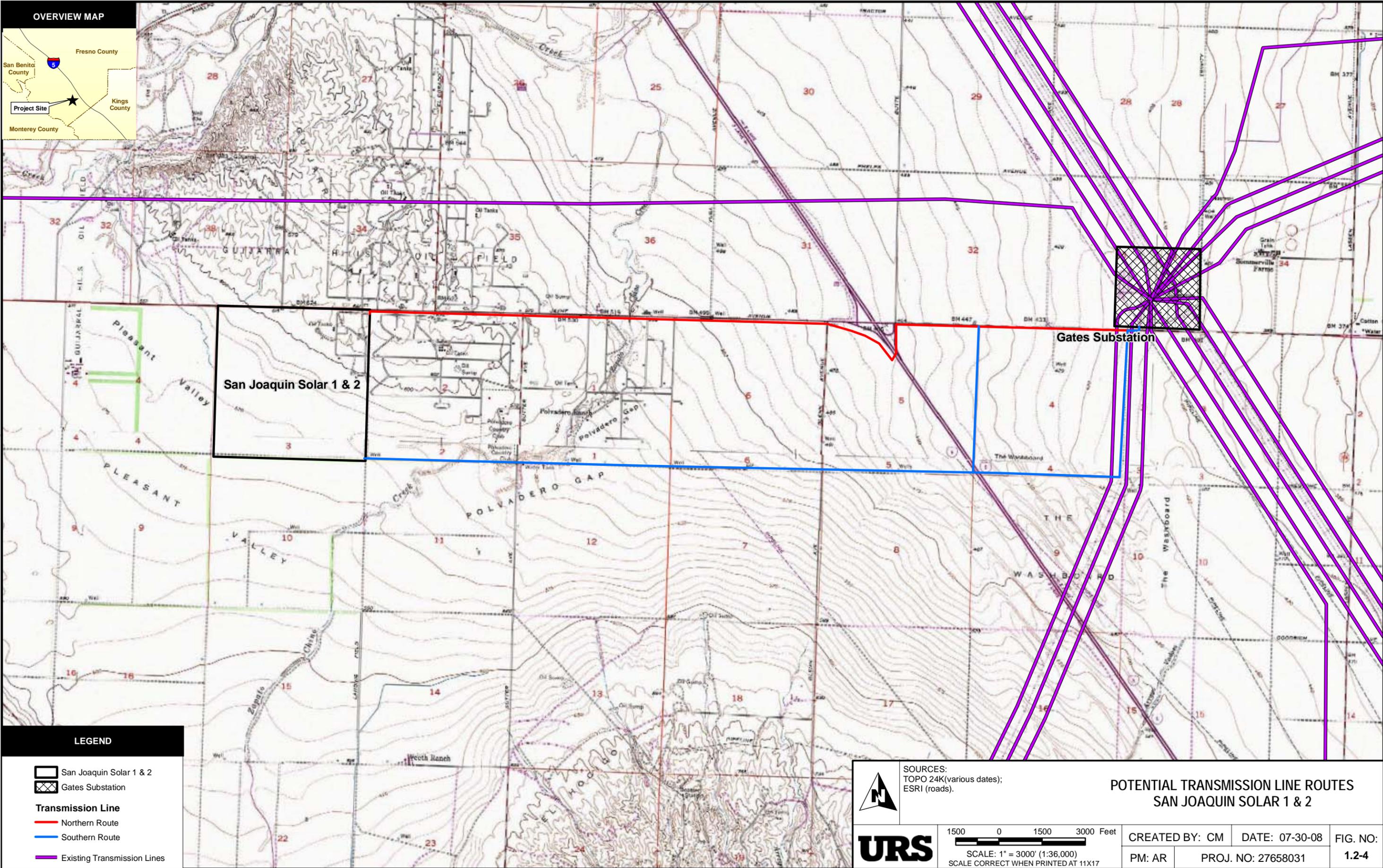
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1.2-3



**San Joaquin Solar 1 & 2**

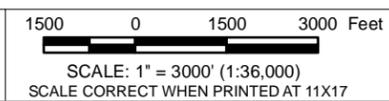
**Gates Substation**

**LEGEND**

- San Joaquin Solar 1 & 2
- Gates Substation
- Transmission Line**
- Northern Route
- Southern Route
- Existing Transmission Lines



SOURCES:  
 TOPO 24K (various dates);  
 ESRI (roads).



**POTENTIAL TRANSMISSION LINE ROUTES  
 SAN JOAQUIN SOLAR 1 & 2**

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